Development of Medical Science in Medieval Period under Islamic Civilization

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The study is aimed at analyzing the medical science that flourished and developed during the golden age of Muslim rulers, and commonly known as Islamic medicine. While some scholars argue that since it was mainly taken from the preceding period of Greek civilization and written in Arabic therefore they preferred the term Greco-Arab medicine. In India, it is practiced as Unani Medicine which in fact does not reflect the true history and large contribution to the medical science made by Muslim scientists as well as Islamic civilization. Besides, how Islamic education and teaching encouraged the people to question the knowledge and make discoveries for the causes of mankind? Under review paper impact of religion Islam on medieval medicine has been specially evaluated.

Keywords: History of medicine; Islamic civilization; Tib

Introduction

Being a natural religion, Islam invited people in general and Muslim in particular to think about the natural creations i.e. universe, heavenly bodies, the earth, animates, inanimate and human body as well. It encouraged Muslim society to question the knowledge, learn science and study the nature. The most important and approximate need for human beings was to preserve the health and to treat the disorders caused by diseases therefore emphasis was also given to the study of medicine. Holy Qur’an says, “Fa Iza Maridt-u Fahuwa Yashfeen”. It means that when I fall ill, He cures me. This verse provides a foundation for firm belief to its believers, patients and physicians that the illness has to be cured last. Besides, it encourages both the patient and the physician to keep the expectations alive for recovery. The hope increases Hararat-e-Gharizia or innate heat which in turn produces vitality in the body and immunity to fight the diseases. Physician always keeps expectations to find new methods or medicines to treat the patients. A Hadith reported by Jabir (Rz) that, the Prophet (pbuh) said “Likull-i-Da’in dawa un Fa Iza Aaseb Dawa Al-Dai Barran Bi Iznillah”. It means, for every disease there is medicine when the medicine perfectly applied to the disease. With the blessing of Allah, the health recovers. The Hadith gives assurance to people in general and patients in particular not to worry and keep patience and wait for recovery because every disease can be treated with right medicine which exists in nature and if not available or known to physicians, they should keep investigating the new one. Islamic approach in accordance to medicine sets new trend among the people of Islamic civilization to know nature, science, social health and medicine.

Around the ninth century, Islamic civilization began to develop and utilize a system of medicine based on scientific analysis. The importance of the health sciences to society was emphasized, and the early Muslim medical community strived to find ways to care the health of the human body with God’s permission. Medieval Islamic civilization fostered some of the greatest medical thinkers in history. Two very important medical thinkers and physicians of Islam were Al-Razi and Ibn Sina. Their knowledge on medicine was recorded in books that were influential in medical schools throughout Muslim history, and Ibn Sina in particular was enormously influential on the physicians of later medieval Europe. Throughout the medieval Islamic world, the medicine was included under the umbrella of natural philosophy, due to the influence of the Greek philosophy. It included a number of treatises written by Hippocrates, Aristotle and Galen which greatly influenced medieval Islamic medical literature.

The medical science was very much on rise in the golden age of Islamic civilization. Numbers of physicians and scholars have been preserved in history who contributed to the subject. However,
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Treatment by *Amal-e-Kai* (Cauterization): Principles, Conditions and Benefits

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In Unani System of Medicine, there are four methods of treatment—*Ilaj-bil-Gisa* (Diet Therapy), *Ilaj-bil-Tadbeer* (Regimental Therapy), *Ilaj-bil-Advia* (Pharmacotherapy) and *Ilaj-bil-Yad* (Surgical Treatment). The process of cauterization (*Amal-e-Kai*) comes under the surgical treatment. According to Hakim Abu Al Qasim Zahrawi, it is a very important process for treatment of diseases and because of its importance he described this process in the first unit of 30th volume of *Kitab-al-Tasreef*. In this book, he has described the effectiveness of the cauterization in most of the diseases. Some of the diseases for which, he has described the treatment by cauterization are migraine, paralysis, otalgia, epilepsy, melancholia, ophthalmic diseases, dental problems, ascites, piles etc. Cauterization means destruction of tissue with a cautery. It prevents the transfer of toxic matters responsible for the diseases from diseased organ to healthy one. Alzahrawi has described two methods of cauterization—*Amal-e-Kai-bil-Nar* (Cauterization with Fire) and *Amal-e-Kai-bil-Advia* (Cauterization with Drugs). But he advised to prefer the *Amal-e-Kai-bil-Nar*.

**Keywords:** *Ilaj-bit-Tadbeer; Ilaj-bit-Yad; cauterization; Amal-e-Kai*

**Introduction**

Cauterization (*Amal-e-Kai*) was used as a principle treatment among the Arab tribes since Pre-Islamic times for various diseases. Dedicated Muslim workers through many experiments and trials, expanded this method of treatment and with their advancement in techniques, the science of cauterization was established.

Every Islamic encyclopedia of that time carried an extensive chapter on cauterization explaining its objects and latest techniques. Human body maps were designed to illustrate the sites of treatment for different diseases. The cautery site for every disease has been marked by a dot; some diseases require more than one dot. Al-Zahrawi, the chief Muslim surgeon (known in the west as Abulcasis) described various instruments used in cauterization. They were in the shapes of needles which may have one point, or biforked or triforked. The metal used for cauterization was either iron, copper, gold or silver according to the disease and site to be treated. Also the degree of heating the instrument was determined in accordance with the need. Zahrawi also described the various important aspects of this method, which are quite interesting and easy to understand. He has avoided the unnecessary philosophical details related to cauterization and mainly emphasised upon its practical aspects.

Cauterization had many applications. It was employed to kill pain in cases of chronic complaints like sciatica, lumbago and some joint diseases. It was successfully used as treatment for headaches of a recurring nature (migraine). In surgery, it was extensively used especially in operations for hemorrhoids and circumcisions to arrest bleeding and to disinfect wounds. In dermatology it was used to destroy warts and skin tags.

The science of cauterization has a very positive application in today’s medicine especially with the advent of modern electrical instruments.

**Historical background**

The descriptions of cauterization has been traced back to the 1600 BC in a surgical papyrus of Egyptian medicine. Egyptians adopted this method for treating the breast ulcers. There are also the evidences of this method in Roman and Chinese medicine.

In Unani medicine, Buqrat mentioned various requisites for this method in his work "*Kitabul Fusool*". Later on Jalinoos (131-201), Rofas (98-117), Deoscaridus, Hunain bin Ishaq (809-873), Ibn Sina (980-1037), Abi bin Abbas majoosi (994), Zohravi (1013), Ibnul Qaf and many others have given the details of this method.
Spatial Pattern of Chronic Diseases: A Case Study

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The present paper attempts to discuss the spatial distributional pattern of chronic diseases in Murshidabad district, West Bengal, India. Its main concern is to analyze the spatial inequality of selected chronic diseases at block level. The level of development has been measured with special reference to health, which contributes significantly in the overall development and progress of the society. The block level data obtained from primary sources in respect of selected chronic diseases in the district. The data so obtained were analyzed with reference to simple percentage method. Finally, the paper concludes with some suggestive remarks in order to reduce the prevalence of chronic diseases in the district.

Keywords: Pattern; Inequality; Health; Chronic disease; Murshidabad

Introduction

The mankind has suffered from disease since time immemorial. It is believed that the pathogens of most of the diseases have always been present in our environment. Their prevalence, ferocity and impact have, however, varied with the development of medical sciences, nutritional status of the people, public health delivery system and progress in attitude of the people towards health. Some diseases spread fast and take a heavy toll of life, even today while others only weaken the body or the mind of the afflicted making them unfit for normal routine of life, temporarily or forever. Diseases associated with high mortality attract greater attention of national governments as well as international agencies. The disease is a negative concept in the sense that it refers to a disorder and therefore it demands to maintain the health within body and the mind. The disturbance in the normal function of the body results from a well defined process known as disease. Health is often equated with ‘absence of disease’. It is known to all that there is widespread malnutrition/under nutrition / hunger and prevalence of poor health in the country as a whole. In such a situation the need for proper health care facilities becomes more necessary, particularly when about 75 per cent of our population lives in social and economic vulnerability.

Theoretically, the terms ‘acute’ and ‘chronic’ sit at opposite ends of a spectrum. In the health care setting, the former relates to a disease of rapid onset and relatively brief duration, while the latter signifies long duration with slow changes in patients’ conditions. A chronic condition develops and worsens over an extended period of time, whereas in an acute condition symptom appears and changes or worsens rapidly. Malaria, Dengue, Typhoid Fever, Acute Respiratory Infections (ARI), Dysentery / Diarrhoea etc. are the examples of acute diseases and on the other hand the examples of chronic diseases are Skin diseases, Stroke, Tuberculosis, Diabetes, Hypertension, Asthma, Cancer, Arthritis, Back Pain, Heart Problem / Cardiovascular Disease, Gastroenteritis, HIV / AIDS etc.

According to World Health Organization (WHO), chronic diseases, such as heart diseases, stroke, cancer, chronic respiratory diseases and diabetes are by far the leading cause of mortality in the world, representing 60 per cent of all deaths. This invisible epidemic is an under-appreciated cause of poverty and hinders the economic development of many countries. Contrary to common perception, only 20 per cent of chronic disease deaths occur in high income countries while 80 per cent occur in low and middle income countries, where most of the world’s population lives. A study has found that tobacco use is a major source of households falling below the poverty line in India2. In India,
Different types of individuals, groups or communities use various kinds of water. Sources of water for drinking and other purposes were different in different era. In primitive time sources of water were rain water, well water and tank water etc. Such sources of water are still prevalent in various regions of developing countries and poor nations. In developed and underdeveloped countries, municipal water supply is usually treated with chlorine. On individual and community basis various kinds of filters and RO systems are gaining popularity. In some countries, new concept of treated water like reduced water and hydrogenated water is prevalent. Water containing metals, nitrate and fluoride is still being used in many areas. The effects of different kinds of water on human body and treatment of water have been discussed in this paper. A study was made on practices of water usage in a densely populated area of Aligarh, Uttar Pradesh.

**Keywords:** Water usage; Water pollution; Treated water; Aligarh

**Introduction**

Water is an important component of physical environment. In our daily life different kinds of water are being used. The sources are classified as rural or urban. The source of water consumed also depends on the country whether developed, underdeveloped or undeveloped. In some areas treated water is used while in others untreated water is used. Sometimes water is contaminated or contains heavy metals. Some people are compelled to use polluted water knowingly or unknowingly. Various kinds of water have different types of characteristics, and qualities and affect the human body. Practices of water usages are different in various segments of society, which have effects on prevalence of various diseases.

**Methodology**

A short study was made in the densely populated area of Aligarh district of Uttar Pradesh. 323 houses were randomly selected for house to house survey. A Performa was developed for community survey and information was collected and compiled.

**Literature**

**Basic Types of Water**

In general, water for drinking and cooking should be wholesome. It should be both potable and palatable. It should be clear, colourless and should have no unpleasant taste or odor.

In our present-day world, we need at least three basic types of water of somewhat different quality, depending on the requirements of each use:

1. **Utility Water:** Water which is suitable to use for sanitation and lawn sprinkling, adequate in quantity, bacteriologically safe, but not necessarily treated to the highest quality.

2. **Softened Water:** Water which is optimum for bathing, shampooing, personal grooming, laundering and dishwashing. Since many of these uses demand hot water, fully softened water produces better results with minimum soap and detergent usage.

3. **Drinking Water:** Water to be used for drinking and cooking must be of high quality. Since water used per person per day is 175 gallons only 10 litres of water is used for drinking and cooking.

4. **Other:** Many commercial establishments (laundries, beauty salons, car washes, etc.) industries (for rinsing and specific processes), and institutions (hospitals, for example for laboratory use, haemodialysis, etc.) use water of variable quality for specific applications at the 'point of use'.

**Effects of Water**

**Unani View:**

Rainwater is injurious to the throat and chest. Water carried through lead pipes is mo
Obesity (Siman-E-Mufrat) in Greeco-Arabic Perspective: A Review

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Abstract

Tibb-e-Unani has been rendering services to the mankind for thousands of years. This healing art is one of the oldest and well organized systems of medicine. The Greeks were the first to recognize Siman-e-mufrat (obesity) as a medical disorder. It is evident that Buqrat (460–377 BC) was first who described obesity (siman-e-mufrat) in his famous book Pusani-e-Buqrat. Buqrat understood that siman-e-mufrat leads to infertility and early death. He was also the first to notice what has probably been recognized as the single greatest, most undeniable truth in health and medicine. That people who are chronically overweight have shorter life expectancy, and suffer more health problems and complications than slender people, which include diabetes, heart disease, high cholesterol, high blood pressure, and many others. Ali bin Raban Tabri also explains the mahajyl and causes of siman-e-mufrat in his book Fredsaful Hokma. Abu Bakr Zakaraya Razi in his book Al-Hawi said that Muradab diet causes siman-e-mufrat. Ali bin Abbas Majooosi and Iben-e-Shina said that taqseel-e-ghiza is a better treatment for siman-e-mufrat and obese person should take such diet which is more in quantity but less in nutritional value such as rich fiber diet and vegetable. The importance of good nutrition is nothing new. Back in 400 BC, Buqrat said, “Let food be your medicine and medicine be your food.” Today, good nutrition is more important than ever. At least 4 of the 10 leading causes of deaths in the U.S. – heart disease, cancer, stroke and diabetes – are directly related to the way we eat; diet is also implicated in scores of other conditions. While the wrong diet can be deadly, eating right is among the cornerstones of health. Ilaj-bil-Ghiza (dietotherapy) is the distinguish line of treatment in Unani system of medicine that is advocated from Buqrat and taken into consideration by all Unani physicians. It prevents deficiencies and other lifestyle diseases. Details will be discussed in full length paper.

Keywords: Greeco-Arabic, Unani, Siman e Mufrat, obesity

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INTRODUCTION

It is more important to know what sort of a person has a disease rather to know what sort of a disease a person has – Buqrat (Hippocrates). The Hippocrates (460–370BC) gave the fundamental principles of Greeco-Arab system of medicine with a belief that the body of the individual is composed of four basic elements, which together, are termed as Anasir-e-Arba or Arkhan (elements) comprising earth, water, air and fire. These Anasir-e-Arba possess four different qualities, i.e., hot, cold, dry and wet. When these different Kaafirate Arba (qualities) of Arkhan (elements) act and react by their powers, then previous qualities become diminished and a new moderate quality is developed which is known as Mizaj. The admixture of these four basic elements results in the formation of four biological fluids or humors, viz., blood (Dam), phlegm (Balgham), bile (Safran) and black bile (Sauida); a right proportion, according to quality and quantity constitutes health and upright proportion and irregular distribution, according to their quantity and quality constitutes disease [1].

Siman-e-mufrat (obesity) means excessive deposition of fat and hence domination of Baroodat in the body. It also means loss of movements of Aziz (organs) due to cold temperament and excessive accumulated fat,
Mizaj: Theory of Greko-Arabic Medicine for Health and Disease

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ABSTRACT
Unani Tibb is the knowledge of achieving perfect physical, mental and spiritual health. The primary goals of Tibb-e-Unani (Unani Medicine) are the maintenance of good health and healing of disease. According to the Unani medicine, there are seven important factors responsible for life of humans on earth called as Umoor Tabiyya. Mizaj is one of the those important Umoor and occupies second place next to Arkan, on which health and disease depend. Health is the maintenance of normal mizaj, any change in the mizaj brings about change in the person’s state of health.
The Descriptions of mizaj by unani physicians are most valuable; they described the concept in details and have given the concept to the best of their knowledge and efforts.

Keywords: Mizaţ (Temperament); Akhat (Humour).

INTRODUCTION
In nature no two things, however allied in origin and structure, resemble each other perfectly. This is true of the animate as well as the inanimate creatures and applies most forcibly to that standing puzzle man in whom these diversities or peculiarities, find their most conspicuous embodiment. The name ‘Mizaj’ has been given to certain physical and moral differences in individuals. Every person has a unique Mizaj, which includes his physical characteristics, physiological profile, psychological and emotional status.
The Hippocrates (460-370BC) gave the fundamental principles of Greco-Arabic System of Medicine with a belief that the body of the individual is composed of four basic elements, which together, are termed as ‘Anasir-e-Arba’ or Arkan (Elements) comprising earth, water, air and fire. These Anasir-e-Arba possess four different qualities, i.e. hot, cold, dry and wet. The admixture of these four basic elements results in the formation of four biological fluids or Humors viz. Blood (Dam), Phlegm (Balgham), Bile (Safra) and Black bile (Sauda), a right proportion, according to quality and quantity constitutes health and upright proportion and irregular distribution, according to their quantity and quality constitutes disease. When these different Kafiat Arba (qualities) of Arkan (elements) acts and reacts by their powers, then previous qualities become diminished and a new moderate quality is developed which is known as Mizaj.
Mizaj theory has its roots in the ancient four humors theory. It was the Greek physician Buqrat (Hippocrates 460-370 BC) who systematized and developed it into a medical theory. He believed certain human moods, emotions and behaviors were caused by body fluids (called "Hums") : blood, yellow bile, black bile, and phlegm. Next, Galen (AD 131-200) developed the first typology of Mizaj in his dissertation De temperamentis, and searched for physiological reasons for different behaviors in humans.
A lot was done and developed by Hippocrates and Galen, but the Arabs worked more attentively on the theory of mizaj. They were the first to locate relationship between diseases, various humors and the disturbance of mizaj.
The Literal Meaning of Mizaj (Temperament)
The literal meaning of mizaj according to Nafis is “Intermixture” as he says “The word mizaj originated from Arabic word ‘intmizaj’ meaning intermixture.”
Mizaj is derived from Arabic word “māy” which means mixing of humors. At other places it is described that mizaj refers to the intermixture of four humors within human body, it is the basis of body. (Litān-ul-Arab)
Azmi says “mizaj is an admixture”. He writes “mizaj denotes admixture, it is a verb but metaphorically used as tempered (Mamzuj)”.
Temperament: Quoting the words of Rudolf E. Siegri, Azmi says: "The Greek used to call the mixture of humors as "krasis" which is derived from "kerannyi" meaning "to mix." The word kerasy is usually translated as temperament."
Laqva (Facial Paralysis) in the View of Ibn Sina and Razi

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In the modern medical era, facial paralysis is linked with the name of Charles Bell. This disease, which is usually unilateral and is a peripheral facial palsy, causes facial muscle weakness in the affected side. Bell gave a complete description of the disease, but historically Unani physicians have described it several hundreds of years prior although it had been ignored for different reasons, such as the difficulty of the original text language. The most famous of these physicians who described this disease were Zakariya Razi (Rhazes) and Ibn Sina (Avicenna). Razi distinguished facial muscle spasm from paralysis, distinguished central from peripheral lesions, gave the earliest description of loss of forehead wrinkling, and gave the earliest known description of bilateral facial palsy. In doing so, he accurately described the clinical hallmarks of a condition that we recognize as Bell’s palsy. Ibn Sina was the first to record differences between central and peripheral facial paralysis. In this article, emphasis is made on contributions by Avicenna and Rhazes regarding the Laqva and its management.

Keywords: Laqva, Zakariya Razi, Ibn Sina

Introduction
History of medicine indisputably resembles the history of human-being. In this way, noticing the authenticity of medical historical texts and elucidating their real meaning will add valuable contribution and information to related sciences ¹. The review of historical documents suggests that facial palsy is as old as human history and has been depicted in paintings, sculptures, masks, and papyri ². In 1821, Sir Charles Bell described the anatomy of the facial nerve and its association with the unilateral facial palsy that bears his name. Peripheral facial nerve palsy was, however, described by earlier physicians such as Sydenham, Stalpart van der Wiel, Douglas, Friedreich, and Thomassen a Thuessink ³. The early Greek physicians gave brief accounts of these disorders. Hippocrates gave brief account of this disease and stated, “Distortions of the face, if they coincide with no other disorder of the body, quickly cease, either spontaneously or as the result of treatment, otherwise there is paralysis”⁴. But it had been originally described by Tabari in his book firdaus-al-hikmat. He documented “If half of the face becomes paralysed, it will drawn to the healthy side, because the muscle are healthy are strong, and will pull the para muscles toward itself”⁵.

Tabari described the clinical syndrome of palsy according to Galen's anatomic finding; he wrote the treatment for facial paralysis completely separate disorder, neither desk with spasm nor with involvement of other parts. 'Tabari thus appears to give the first accurate description of isolated facial palsy'.

But the physician who wrote the comprehensive treatise on facial paralysis gave a thorough description of facial palsy, suggested some treatments, was Razi (866 A.D). He wrote a complete chapter on “Facial distortion, spasm and paralysis” chapter sixth of volume 1 of Al-Hawi. He was first who differentiated peripheral facial from central seventh nerve palsy, phenomenon, the significance of absense forehead wrinkling, described bilateral...
Implication of Unani Usool-e-Illaj in Different Types of Amraz

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According to Unani system of medicine, management of any disease depends upon the diagnosis of disease. In the diagnosis, clinical features, i.e., signs, symptoms, and Mizaj (temperament) are important. After diagnosing the disease, Usool-e-Illaj (principle of management) of disease is determined on the basis of etiology in the following pattern: Izalae Sabab (elimination of cause), Taddele Mizaj (normalization of Temperament), Tadeel-e-Aza (equability of organelles). Usool-e-Illaj is totally based on the Tabiyat which is supreme planner of the body so modalities of treatment is selected by keeping in mind the need of Tabiyat one or more of the following therapy is used i.e. Ilaj-Bil-Tadbeer (Regimenal Therapy), Ilaj-Bil-Ghiza (Diatoherapy), Ilaj-Bil-Advia (Pharmacotherapy) and Ilaj-Bil-Yad (Surgery). The disease may be treated by the modification of six essential pre-requisites of health, which may be modified by the use of one or more regimens.

Key words: Unani, Usool-e-Illaj, Schat (health), Adilla-e-Tashkhees

Introduction
The Unani System of Medicine was originated in Greece. Hippocraet is known as the father of medicine. The theory of health and disease in Unani medicine is based on his teachings. Disease concepts are presented as causal networks that represent the relations among the causes, symptoms and treatment of a disease. The Hippocratic approach to medicine, as interpreted by Galen and others, dominated European medical thought well into the nineteenth century. The following quotes from Hippocratic treatises concisely summarize the humoral theory: The human body contains Dam, Balgham, Safra and Sauda (blood, phlegm, yellow bile, and black bile) and make up its constitution and causes disease and health. Health is primarily a state in which these constituent substances are in the correct proportion to each other, both in strength and quantity, and are well mixed (Lloyd-1978). Whereas disease is the abnormal condition of human body which by itself, produces functional disorder as a primary consequence and that is either an in temperament or an abnormal composition. Diseases arise because of humoral imbalances, As Unani therapy is dependent upon equilibrium, if there is any change in Mizaj the 'equilibrium is disturbed in any way the life is threatened. For example, too much bile can produce various fevers, and too much phlegm can cause epilepsy or angina.

States of Human Body
The states of human body, according to Galen are three, 1. health, it is a state which helps to maintain the functions of the body through proper balance of its temperament and composition in a correct and sound manner. 2. Disease, it is that state of the human body which is contrary to the aforementioned state. 3. Halat-e-saalsa in which there is neither health nor disease as the bodies of the old and the convalescent and of children. Signs and symptoms indicate one of the three states of the human body already mentioned i.e. health, disease and the intermediate state.

Diseases (Marz) It is of two types
A) Marz-E-Mufrad (simple): These are of two kinds, belonging either to the category of the
Assessment of Metabolic Functions of Liver Through Total Serum Protein in Choleric & Phlegmatic Individuals

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BACKGROUND: A large number of metabolic processes take place in the liver which is aimed at benefitting the liver cells themselves as well as the entire body. Therefore, Ibn Sina (980-1037) says: the power of transformation (Quwat-e-mughayar) found in the liver performs such vast and extensive function by which the entire body is benefited.

OBJECTIVE: To assess the metabolic functions of liver by the estimation of total serum protein in Choleric and Phlegmatic temperament individuals through Biuret Method.

DESIGN, SETTING, PARTICIPANTS: Volunteers were selected randomly from students of Aligarh Muslim University and Aligarh city, preference was given to students residing in hostels because their environment and nutritional status remain almost static and constant. 110 male volunteers in the age group of 20–35 years, having Choleric and Phlegmatic temperament were selected for the study.

RESULTS: The mean and standard deviation were calculated. It was revealed after this study that the mean total serum protein was 7.51 (g/dl) with SD 0.83 and 7.05 (g/dl) with SD 0.63 of choleric and phlegmatic subjects respectively. And there is significant difference (p<0.001) between both groups after applying Student t-test.

CONCLUSION: The individuals having Choleric temperament have higher levels of total protein than the phlegmatic individuals. The metabolic activities of liver in choleric individuals were found to be more handsome than phlegmatic ones within normal values.

KEYWORDS: Serum protein, Temperament, Choleric, Phlegmatic, Liver.

Introduction:
The concept of temperament is a pillar of Unani Medicine on which health or disease condition of human being and the entire Unani therapeutics including diagnosis, treatment and prevention of diseases are based. The liver has, since the times of recording of medical history, been considered as one of the principal vital organs governing health and disease and liver (Kabid) known as the seat of life since ancient times 1. Liver is involved in the metabolism of almost all the physiological important substances and is also independently involved in many other important biochemical functions. Liver is the most important organ which is responsible for generating heat and blood, which qualifies essential for life and soul. Hippocrates (460-377 BC) considered that liver was the root of the veins and the source of blood and heat. Plato (428-347 BC) considered liver as the manager for the body and the origin of physical appetites 2. Raban Tabi said that liver is the storehouse of blood 3. It is a large, expandable venous organ capable of acting as a valuable blood reservoir and capable of supplying extra blood when diminish blood volume. Abu Sehal Mashi observes in this regard liver prepares most of the constituent of blood and sends them in the vessels for circulation among the organs.

A large number of metabolic processes take place in the liver which is aimed at benefitting the liver cells themselves as well as the entire body. Therefore, Ibn Sina says: the Quwat-e-mughayar (power of transformation) found in the liver performs such vast and extensive function by which the entire body is benefited 4.

According to the Unani physician and philosophers, the power of assimilation, retention, digestion and excretion occurs liver. The liver is one of the principal vital organs of the body and source of origin of Quwat-e-tabiyah (physical or somatic powers) and the seat of digestion of chyme 5.

Majosi (930-994 AD) while explaining the reason of hot and moist (haar-ratab) temperament of liver says that various metabolic processes and formation of blood take place in the liver 6.

Kabiruddin while quoting the views of Avicenna writes: “Liver is a huge factory where due to digestive and metabolic changes the various humors of the body are formed in plenty”.

Major metabolic processes of the body are performed through the liver metabolism (hamz kabid) and most of the constituents of blood are formed through this metabolism. It is why the liver is said to be the “seat production of Akhlat”.

Production of Blood (Taulid-dal-Dam): Unani physicians considered that the Akhlat (Dam, Balgham, Sauta and safra) is formed in the liver i.e. liver is the main seat for synthesis of blood. According to Ibn Sina (980-1037), the chyle from stomach reaches the liver where it is cooked and some substance are formed. One of them is foam (rughwah) that is yellow bile (safra), the other is black bile (sauta); the incomplete digested matter is phlegm (balgham) and the fully digested and filtered matter is blood (dam) 7.
Prevention of SARTAAN (Cancer) and its Management in Unani System of Medicine: a Review

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ABSTRACT

The Unani system of medicine provides not only proper diet but also single herbal drugs (Unani Advia Mufridah) which helps in boosting immunity. This paper is aimed to calculate and analyse the data of single herbal drugs which are effective in curing cancer whether it is caused by genetic factors or other environmental factors. This can make a huge difference in fighting cancer. Some foods increase the risk of cancer, while others support the body and strengthen the immune system. By choosing proper diet one can protect his health, feel better, and boost his ability to fight off cancer and other diseases. Ancient physicians provide us with the right choice of diet which has a powerful effect on health and reduces the risk of cancer. Unknowingly we are consuming such kind of food that is triggering the risk of cancer and neglecting the food which carry the nutrients and which helps in the protection from the deadly disease. For example, a daily serving of Ghiza-e-kaseef qaleel-ul taghiza raddi-ul-kaimooos (e.g. red or processed meat) increases the risk of colorectal cancer by 21 percent, while eating Ghiza-e-lateef qaleel iltaghzia jayyad-ul-kaimoos (Fruits and vegetables) can lower risk of a variety of common cancers. By making small changes in diet and lifestyle one can lower the risk of various diseases and can even stop cancer in its track because fruits and vegetables are the best source of antioxidants. Beside these, there are several kinds of Advia mufridah which contains many phytochemicals with medicinal properties.

Keywords: Ghiza-e-kaseef qaleel-ul taghiza raddi-ul-kaimooos, Ghiza-e-lateef qaleel iltaghzia jayyad-ul-kaimoos, Advia mufridah.

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RESEARCH ARTICLE

ESTIMATION OF PREVALENCE OF ZIGHTUD-DAM QAWI (HYPERTENSION) IN PERSONS OF URBAN ALIGARH WITH RESPECT TO DIFFERENT TEMPERAMENTS OF UNANI MEDICINE

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ABSTRACT

Hypertension is one of the major health challenges of 21st century, which, for most countries, has developed together with rapid cultural and social changes, ageing populations, increasing urbanization, dietary changes, reduced physical activity, and other unhealthy behaviors.

Objectives: (1) It is aimed to determine the temperature of persons suffering from hypertension. (2) To estimate the prevalence of hypertension in different temperaments. (3) To study the relationship, between hypertension and temperament, if any.

Materials and Methods: An OPD based cross sectional study was conducted among individuals aged 21 to 80 years in Aligarh National Charitable Hospital, Near Jama Masjid Upper Fort, Aligarh, during March 2014 to April 2015. The assessment of the temperament (Mizaj) of the patients was made on the basis of a Performa (questionnaire) prepared in the light of criteria described in classical Unani literature. The categorization of HP was done according to Joint National Committee VII (Indian scenario), 2003-12.

Results: Out of 502 hypertensive persons 211 (61.45%) were suffering from both systolic and diastolic hypertension and 191 hypertensive’s (38.05%) had isolated systolic hypertension. It was observed further, that out of 502 hypertensive’s, 237 were having sanguineous temperament, 145 phlegmatic temperament, 94 bilious temperament and 26 were having melancholic temperament.

Conclusions: It can be concluded by this study that there is a relation between hypertension and mizaj (temperament) of an individual’s, and that, prevalence of HP in individuals varies significantly when categorized with respect to different temperament. The need of the hour is to understand the concept and importance of temperament and its application in health care.

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INTRODUCTION

Hypertension is a common disease associated with high morbidity and mortality. The disease is a silent threat to the health of people all over the world. It is a silent, invisible killer because it often has no warning signs or symptoms, and many people do not realize they have it until the organ damages have occurred; that is why it is important to get blood pressure checked regularly (Bartwal, 2014). Thus early detection of hypertension and its precipitating or aggravating factors are important if one is to evolve measures so that complications of hypertension can be prevented.

Hypertensive persons tend to have other medical problems, such as obesity, high blood lipids and diabetes mellitus (Prashant, 2011). Coronary risk factors such as hypertension, smoking, physical inactivity, obesity and improper diet are fairly widespread. Cardiovascular diseases, particularly hypertension, account for high mortality in the form of cardiovascular strokes in the world.

Why it is dangerous?

In India, cardiovascular diseases (CVDs) are estimated to be responsible for 1.5 million deaths annually (Gaziano et al., 2006). Indeed, it is estimated by 2020, CVDs will be the largest cause of mortality and morbidity in India (WHO Report, 2002), (O’Donnell et al., 2010). Using a cut-off of 140 mmHg or greater systolic blood pressure (BP), or 90 mmHg or greater diastolic BP.
توضیحات صول عالیہ

ادی جامعه

اخلاص کی

طب کا موضوع بود اس کا جواب کے لیے مراکز کے ساتھ پیادہ کی جاتی ہے۔ مرض سے کیے گئے اس کے لیے اس کیصحت و وضوح کے دوسرے مراکز میں مانگ گئے خاص کے ساتھ جاگرہ ہے۔ مرض کے کئی مشکلات کا دلیل اور اس کی تجویزات کے ساتھ خاص کے مرکز میں "مہم" کے لیے کا جواب ہے۔

اضافہ کی زبان میں کئی مشکلات کا دلیل اور اس کی تجویزات کے ساتھ خاص کے مرکز میں "مہم" کے لیے کا جواب ہے۔

وفات

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وفات

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وفات

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COSMETOLOGY IN UNANI SYSTEM OF MEDICINE: A REVIEW

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ABSTRACT

Beauty of person gives perceptual experience of pleasure or satisfaction. Unani Medicine never isolate the involvement of mental and spiritual well being from the concept of beauty. Unani Medicine, the world’s ancient science of health care and healing, works on four humors blood, phlegm, yellow bile and black bile. When these are in perfect harmony, a person radiates with inner and outer beauty. In fact, the concept of beauty and cosmetics is as old as mankind and civilization. Unani physician believe that toxic materials inside our body make a person ugly and diseased and Musafī Advia (Purifiers) are the best therapeutic intervention to eliminate body toxins. Safe solutions, no side effects, use of natural herbs, long lasting impacts etc. have made Unani Medicine as choicest cosmetology. India could emerge as a major contributor to the global cosmetic industry. This will possible, as one of the strengths of India is Unani tradition. The present review deals with the Unani concept of cosmetology, advantages of Unani Medicine in Cosmetology, Unani medicines & medicinal plants proven as cosmeceuticals.

KEYWORDS: Humors, Unani cosmetics, Cosmetology, Musafī Advia.

INTRODUCTION

Beauty is the desire of every individual to give pleasure to the sense. Beauty is not only a source of joy but gives confidence and proud to some extent. Ancient Unani scriptures and many mythological epics encompass the reference of cosmetics like Turmeric (Curcuma longa), Saffron (Crocus sativus), Sandal surkh (Pterocarpus santalinus) and Agaru (Aquilaria agalbeha) that were used as body decorative, beautification, to create body fragrance and beauty spots on the chin and cheeks in the era ruled by gods and their deities. The secret of Unani cosmetology is in the surrounding nature. Unani physicians skillfully use vegetables,
FULL LENGTH RESEARCH ARTICLE

RIYAZAT (EXERCISE): A PART OF ILAJ BIL TADBEER AND ITS ROLE IN PREVENTION OF DISEASES

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ABSTRACT

Riyazat is any bodily activity that enhances or maintains physical fitness and overall health and well-being. It is performed for various reasons, including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, and merely enjoyment. Regular physical exercise boosts the immune system and helps to prevent the "disease of affluence" such as cardiovascular disease, Type 2 diabetes, and obesity. It may also help to prevent depression, help to promote or maintain positive self-esteem, and improve mental health generally. In Unani system of medicine exercise is one of the sixteen methods of treatment of regimens therapy and is used as a voluntary movement with the purpose of Tanqua e maswad (evacuation of waste material) for purification of the body in an individual. It maintains good health and prevents diseases as well.

INTRODUCTION

Unani medicines owe its origin to Greece 2013-01-08. This system originated as far back as 460-370 BC with the contribution of Hippocrates (Bhaaonkar and Ahmad, 2007). It encompasses a wide range of practices. Regimen therapy is one of them. It includes enemas, cupping, the promotion of diaphoresis, diuresis, Turkish baths, cataractization, massages, purgation, enemas, exercise and leeching (Anonymous, 2010). Fomentation, pouring of lukewarm water on affected part, ointment and liniment, enema, leeching etc (Cameron Gruner, 1930). These different types of methods are used for the treatment of various ailments. Riyazat is a voluntary movement with the purpose of Tanqua e maswad (evacuation of wastes material) for an individual. It plays an important role not only in maintaining good health and prevention of diseases but also in curing certain ailments as well. The objectives of performing Riyazat are as follows:

・ to maintain coordination and balance of the musculoskeletal system of the body,
・ to relieve anxiety, insomnia, depression as well.3

In this way exercise strengthen the body as a whole. Although Unani system of medicine has its own areas of expertise and remarkable results in curing the disorders of musculoskeletal system, respiratory conditions, skin, liver, and nervous system disorders and several other acute and chronic disorders whereas other system have failed to given desired response. Now this system has crossed national boundaries and popular along the masses globally. In some of its expertisation as mentioned above it has a remarkable role in some of aforesaid disorders using exercise as an element to cure the same (www.kld.res.in/kld/Regimental.asp 2013-01-08). In this paper, we will discuss about the Riyazat (exercise) and its broad indications in preventing and curing various types of diseases.

Value of Exercise (Cameron Gruner, 1930)

- It hardens the organs and renders them fit for their functions
- It results in a better absorption of food, aids assimilation, and by increasing the innate heat, improves nutrition
- It clears the pores of the skin

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An overview on Six essential pre-requisites or Asbab e sitta Zarooriya in preservation of diseases and its correlation with tabiat

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ABSTRACT

Unani system of medicine recognizes the influence of surroundings and ecological conditions on the state of health of human beings. This system aims at restoring the equilibrium of various elements and faculties of the human body. It has laid down six essential pre-requisites for the prevention of diseases and places great emphasis on the maintenance of proper ecological balance and, on the other, on keeping water, food and air free from pollution. These essentials, known as 'Asbab-e-Sitta Zarooriya' and are as follows, air, food and drinks, bodily movement and repose, psychic movement and repose, sleep and wakefulness, and exertion and retention etc. In this article we will discuss on these six essentials, how they play an important role in preservation of health and how these are correlated with tabiat in maintenance of health.

Keywords: six essentials, food and drinks, tabiat etc.

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Dermatophytosis (Qooba) a misnomer infection and its management in modern and unani perspective - A comparative review

Sameena Firdaus, Dr. Ferasat Ali, Nida Sultan

Abstract

Dermatophytosis is a roughness of the surface of the skin, which is associated with itching, scaling, and dryness. Sometimes, fish like scales may also shed off. It may be black or red in colour. Usually the periphery is red and occasionally there may be oozing of yellowish fluid. All these conditions develop according to pathogenic substances. Earlier it was thought that these organisms are plant, therefore, it is actually a misnomer infection. Its concept and treatment is very well described in Unani medicine. In this review article we made an attempt to discuss the infection in the light of modern and unani perspective and its management in both systems of medicine.

Keywords: Dermatophytosis, misnomer infection, unani perspective, infection spreads

Introduction

Worms don’t cause ringworm. Rather, this superficial skin infection, also known as tinea, is caused by fungi called dermatophytes. Fungi are microscopic organisms that can live off the dead tissues of your skin, hair, and nails, much like a mushroom can grow on the bark of a tree. Ringworm is characterized by a red ring of small blisters or a red ring of scaly skin that grows outward as the infection spreads. Though children are especially susceptible to catching ringworm, it can affect adults as well [1]

In unani literature, qooba is a superficial fungal infection of keratinized tissues. The infection is commonly designated as Tinea, it is caused by dermatophytes which are a group of taxonomically related fungi belonging to more than 40 closely related species, classified into three genera, viz: Microsporum, trichophyton, and epidermophyton. They are capable of colonizing keratinized tissue such as stratum corneum of epidermis, nails, and hair. By their metabolic activities, they evoke inflammatory response in the form of erythema, vesiculation, pustulation, microabscess formation, and scaling. Etc. It has been described by names like Daad, Qooba, Paryun. Various eminent scholar have given a detailed account of this disease. Basically, most of them regard morbid humour as the main culprits. Unani system of medicine is a treasure trove for effective and innocuous drugs and various renowned unani physicians have recommended various drugs and formulations for its treatment. Qooba resembles saafa [2] especially safi e yabisa. It may be be huzaz but according to some huzaz is the qooba of scalp [3].

Views of Ancient Philosophers Regarding Qooba (Ringworm)

As far as the history of Qooba, and ancient unani literature is concerned, it was Hippocrates, the father of medicine, who gave an ample space and new direction to medical thoughts with his humoral theory. The first recorded reference to a dermatophyte infection is attributed to Aulus Cornelius Celsus, the Roman encyclopaedist, who in the treatise De Re Medicina written around 30 B.C. described a suppurative infection of the scalp that came to be known as the Kerion of Celsus [3]. Dioscorides in 60 A.D. gave the description of Qooba in children’s and its treatment in De Materia Indica [4].

Jalinoos (Oaten of Pergamon, 129-200 A.D.) considered to be the most distinguished physician of antiquity after Hippocrates, described qooba, its cause and treatment and classified it into acute and chronic in his book Mayameer [5].

Rabban Tabri (810-895 A.D.) in his book Firdaus al hikmat, has made a mention of qooba, its causes and treatment based on humoral theory.
BENEFITS OF LEECH THERAPY IN UNANI SYSTEM OF MEDICINE:
A REVIEW

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ABSTRACT
This paper is aimed to review and analyze the benefits of the leech therapy in Unani system of medicine. Leeches help humans in a number of medical treatments. Ancient Egyptian, Indian, Greek and Arab physicians used leeches for a wide range of diseases starting from the conventional use for bleeding to systemic ailments, such as skin diseases, nervous system abnormalities, urinary and reproductive system problems, inflammation, and dental problems. Nowadays, they are being used for various therapies by Unani as well as allopathic practitioners. Leech therapy is not a new concept. It dates back to many centuries. It has been a vital part of the traditional methods of healing in many countries across the world since ancient times. Its origin may be traced to the early days of civilization when man roamed about in the jungles, leading a nomadic life. Today, Leech therapy has found acceptance in the modern society as an economical, quick and effective way to cure blood circulation disturbances and related diseases. However, there are diverse views over the classification of Leech therapy. While some medical experts think Leech therapy is a part of Unani system of medicine others deem it to be a treatment under naturopathy.

KEYWORDS: leech therapy, Istifiragh.

INTRODUCTION
Bloodletting is an ancient art which archaeologists dated back to Stone Age after recent discovery of bloodletting tools in that culture.[1] The first records concerning bloodletting by cutting vein, or venesection were found in the Hippocratic collection in 5th century BC. Early practitioners let blood to eliminate the peccant humors in an attempt to restore health.
Therapeutic Efficacy of a Dietary Formulation in Chronic Tonsillitis: A Case Study

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Abstract

Anxiety is a physiological state characterized by somatic, cognitive, emotional and behavioral components. As per the literature of Unani Medicine, anxiety belongs to infaqat-e-nafsaniyah which is a part of ajnas-e-ashrah (ten parameters) for the assessment of mizaj (temperament) of an individual. According to ancient physicians, infaqat-e-nafsaniyah are higher in the persons of bilious temperament than the persons of phlegmatic temperament. The present study was designed to assess the level of anxiety during normal and stressful conditions in persons of bilious and phlegmatic temperament by using Anxiety State Test (AST).

Volunteers were selected randomly from the student fraternity of Aligarh Muslim University and Aligarh city. 100 male and female volunteers of 18-35 years of age of both the temperaments were selected for the study and the AST score was determined. In normal condition the mean AST score was found to be 28.24 ± 3.998 and 25.30 ± 2.915 in bilious and phlegmatic subjects respectively. During stressful condition, the mean AST score was recorded as 44.40±7.149 and 35.64±3.729 of bilious and phlegmatic subjects, respectively. A significant difference between the two groups in both the conditions was recorded.

The individuals of bilious temperament have higher anxiety than their phlegmatic counterparts both in normal as well as stressful conditions.

Keywords: Anxiety, Infaqat-e-nafsaniyah, Ajnas-e-ashrah, Mizaj, Temperament, Bilious, Phlegmatic

Introduction

Anxiety is a normal phenomenon which is characterized by a state of apprehension or unease arising out of anticipation of danger. It is an alerting signal that warns of impending danger and enables the person to take measures to deal with a threat. Normal anxiety becomes pathological when it causes significant subjective distress and/or impairment in functioning of an individual. Basically anxiety is of two types i.e. trait anxiety and state anxiety. Trait anxiety is related with the personality of an individual while the state anxiety is related with a specific state or condition (Ahuja, 2006).

The concept of mizaj (temperament) is a pillar of Unani Medicine on which the states of health and disease of human being and the entire Unani therapeutics including diagnosis, prevention and treatment of diseases are based. According to Unani system of medicine, there are four types of temperament viz. satravi
Variations of Galvanic Skin Response (GSR) in Persons of Bilious and Phlegmatic Temperament

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Abstract

The galvanic skin response (GSR) is one of the several electrophysiological responses that refer to the changes in the electrical properties of human skin caused by an interaction between environmental events and the person’s psychological state. Easily measured and relatively reliable GSR has been used as an index for providing measurable parameter to understand the psychological state of persons having different temperaments. The GSR reflects the sweat gland activity, which in turn corresponds to changes in the sympathetic nervous system. The present study has been designed to measure GSR during normal and stressful condition in healthy volunteers of bilious and phlegmatic temperament.

Volunteers were selected randomly from students of Aligarh Muslim University and other colleges of Aligarh city; preference was however given to the students of Ajmal Khan Tibbiya College. 100 volunteers of both sexes in the age group of 18-35 years having bilious and phlegmatic temperament were selected for the study. Their GSR was measured with the help of GSR meter and the findings were expressed numerically.

During normal (stress free) condition the mean GSR value was scored as 307.5±25.214 and 289.24±29.038 in bilious and phlegmatic subjects, respectively. While during stressful condition, the mean GSR value was found to be 206.08±24.392 and 277.7±29.039 in bilious and phlegmatic subjects, respectively. The findings indicated that individuals of bilious temperament have comparatively more GSR value than those of phlegmatic temperament during normal condition but during stressful condition bilious individuals have less GSR value than the persons of phlegmatic temperament. It was concluded therefore that bilious individual have higher tendency of anxiety and stress.

Keywords: GSR, Mizaj, Bilious, Phlegmatic, Unani medicine

Introduction

The Galvanic Skin Response (GSR) is a simple and reproducible method of capturing the autonomic nerve response as a parameter of the sweat gland function (Shahani et al., 1984). Physically, GSR is a change in the electrical properties of the skin in response to different kinds of stimuli. Any stimulus capable of an arousal effect can evoke the response and the amplitude of the response is more dependent on the surprise effect of the stimulus than on the physical stimulus strength (Ranta-aho et al., 2006 and Tarvainen et al., 2000). The electrical resistance of the skin (which is typically large and varies slowly over time),
Approaches Consideration in the Management of Hepatitis (Warm E Kabid) by Means of Conventional Medicines and Herbal Drugs: A Systematic Review Study

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Abstract

The word hepatitis comes from two words, the Greek word Hepar meaning “Liver” and the Latin word Ils meaning inflammation. Hepatitis refers to an inflammatory condition of the liver. It is commonly caused by viral infection, but there are other possible causes of hepatitis. These include autoimmune hepatitis that occurs as a secondary result of medications, toxicity, and alcohol. In Unani system of medicine hepatitis is a condition in there occur derangement in temperament of liver and due to this disturb temperaments it may lead to increase in liver size and other symptoms. In Unani medicine hepatitis is treated by its holistic approach. The stalwart’s scholars such as Razi, Majooni, Sheikht, Asab Arzani, has classified the condition as sanguine, bilious, phlegmatic and malenchoic. Here in this paper an attempt is made to review the management of Hepatitis both in conventional therapy as well as by complementary and alternative (CAM) supplements usage.

Keywords: Hepatitis; Temperament; Complementary; Alternative (CAM).

Introduction

Hippocrates was the first Unani physician who described hepatitis with rational explanation based on humoural theories and human temperament. There was continuous pilling of knowledge by Galen and other Arab physicians, like Rubban Taberi, Zakariya Razi, Majooni, Masechi, Jurjani, etc., and all they contributed a lot in its diagnosis and management. Hepatitis is a disease of liver that is characterized by the presence of inflammatory cells in the tissue of the organ. Hepatitis may occur without symptoms but can lead to jaundice as well. It can be manifest as either acute or chronic disease depending upon the cause [1]. Acute hepatitis can be self-limiting or may progress to chronic hepatitis and in this way can lead to acute liver failure in rare instances [2]. Chronic hepatitis may have symptoms or may progress to fibrosis and cirrhosis [3]. Cirrhosis of the liver can increase the risk of developing hepatocellular carcinoma [4].

Causes

Causes of hepatitis can be divided into the following major categories: infectious, metabolic, ischemic, autoimmune, genetic and other. Infectious agents include viruses, bacteria, and parasites. Toxins, drugs, alcohol, and lipids are metabolic causes of liver injury and inflammation. Autoimmune and genetic causes of hepatitis involve genetic predispositions and tend to affect characteristic populations. Ischemic hepatitis results from reduced blood flow to the liver as in shock, heart failure, or vascular insufficiency [5]. In infectious hepatitis, three types of hepatitis come into play, i.e., viral hepatitis, parasitic hepatitis, bacterial hepatitis.

Viral hepatitis

Viral hepatitis is the most common type of hepatitis and is caused by five different viruses’ hepatitis A, B, C, D, E). Hepatitis A and E are transmitted by same feco-oral route and are self-limiting in nature and do not lead to chronic hepatitis on the other hand, hepatitis B, C and D are transmitted when blood and mucous membrane are exposed to infected blood and body fluids such as semen and vaginal secretions. Hepatitis B and C can present either acutely or chronically. Hepatitis D is a defective virus that requires hepatitis B to replicate and is only found with hepatitis B co-infection [1]. In adults, hepatitis B infection is most commonly self-limiting, with less than 5% progressing to chronic state, and 20 to 30% of those chronically infected developing cirrhosis and/or liver cancer [6]. Unlike hepatitis B, most cases of hepatitis C lead to chronic infection [7].

Etiopathology of warm-e-kabid (Hepatitis) in Unani classical text

Rabbab Tabri mentioned that warm-e-kabid mubaddab (swelling on the convex side of liver) occurs when kidney and diaphragm involved and when involvement of spleen, stomach, and intestines takes place it will be warm-e-kabid Majgar (swelling on the concave part of the liver).

Zakariya Razi mentioned that when liver absorbs useless substances due to su-e-mizaj har (abnormal hot temperament) that other necessary substances required by liver are unable to get absorb by liver and it will result in warm-e-kabid (hepatitis).

Ismael Jurjani mentioned that when due to a suddah (obstruction) between liver and gallbladder safra (bile) does not pass to duodenum it leads to accumulation of bile in liver and thus result in warm-e-kabid (hepatitis).

Abul Hasan Ahmad Bin Mohammad Tabri mentioned that when obstruction occurs between spleen and liver it leads to formation of improper blood and that accumulates in bile canaliculi and produces liver inflamation.

According to muhali-e-nafisi and urjuma aqarari any hot substance like safra muharriet (Burnt or oxidized bile) produces liver...
UNANI SYSTEM & THE CONCEPT OF OBESITY (SAMANE MUFRAT): REVIEW

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ABSTRACT

Living in the twenty first century has its advantages but along with fast lifestyle comes disadvantages. One disadvantage is having faulty lifestyle and unhealthy diet. Around the world, diabetes, obesity and cardiovascular diseases are affecting the health and well being of millions of people due to faulty lifestyle. Among these, obesity is the world's oldest metabolic disorder. The WHO now considers obesity to be a Global epidemic and a public health problem. Sedentary habits with little exercise are the main reason behind increased incidence of Obesity. Obesity can lead to heart problems, diabetes and other serious health problems, which can cost millions to treat, and which can reduce life expectancy. Modern drugs for the treatment of obesity include appetite suppressants and lipase inhibitor which has its own side effects. Unani system of medicine advocates healthy life style through Ilaj bi’l-Ghiza, Ilaj bi’l-Dawa, Ilaj bi’l-Tadbir to prevent all kind of diseases. By following virtuous life style as described in Unani system of medicine one can prevent himself from obesity and reduce its risks to develop various killer ailments which will be discuss in full paper.

KEYWORDS: Lifestyle disorders, Ilaj bi’l-Ghiza, Ilaj bi’l-Dawa, Ilaj bi’l-Tadbir.

INTRODUCTION

Obesity is defined as a disease process characterized by excessive body fat accumulation with multiple organ-specific consequences and is a multifactorial disorder. Obesity and overweight occurs due to imbalance between calories consumed and calories utilized. These are the most common nutritional disorders in developed countries, affecting the majority of
Reorientation of Unani Medical Education System

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Advancements in medical science are reflected in medical education in terms of incorporation of newer techniques in teaching and availability of standard text books, but it is not the same in Unani education system. Education in the field of Unani System of medicine is regulated by Central Council of Indian Medicine (CCIM) New Delhi, which came into existence by the act of Parliament. The CCIM has already prescribed minimum required standards which are mandatory to all Unani institutions throughout the country for its implementation whether run by State Govt. or Grant in aid Colleges or under private sector. CCIM needs to take initiatives to supervise and scrutinize the existing system of education in Unani system of medicine which is presently in practice at various Unani Institutions since CCIM is a regulatory body accountable for maintaining the academic standard. The objective of this paper is to propose reformations required in existing Unani education system to meet the current needs.

Keywords: Unani, CCIM, education, reformation.

Unani Education System and recognition

In South Africa, University of the Western Cape offers a five years double bachelor degree. In India, there are 46 Unani medical colleges where the Unani system of medicine is taught. After five and half year courses, the graduates are awarded BUMS (Bachelor of Unani Medicine and Surgery). There are about eight Unani medical colleges where a postgraduate degree (Mahir-e-Tib and Mahar Jarahat) is being awarded to BUMS doctors. All these colleges are affiliated to reputed universities and recognized by the governments.

In India, the Central Council of Indian Medicine (CCIM) a statutory body established in 1971 under Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH), Ministry of Health and Family Welfare, Government of India, monitors higher education in areas of Indian medicine including Ayurveda, Unani, siddha and Homeopathy. To fight biopiracy and unethical patents, the Government of India, in 2001, set up the Traditional Knowledge Digital Library as a repository of formulations of systems of Indian medicine, includes 98,700 Unani formulations. Central Council for Research in Unani Medicine (CCRUM) established in 1979, also under AYUSH, aids and co-ordinates scientific research in the Unani system of medicine through a network of 22 nationwide research institutes and units, including two Central Research Institutes of Unani Medicine, at Hyderabad and Lucknow, eight Regional Research Institutes at Chennai, Bhandra, Patna, Aligarh, Mumbai, Srinagar, Kolkata and New Delhi, six Clinical Research Units at Allahabad, Bangalore, Karimganj, Meerut, Bhopal and Burhanpur, four Drug Standardization Research Units at New Delhi, Bangalore, Chennai and Lucknow, a Chemical Research Unit at Aligarh, a Literary Research Institute at New Delhi. In Pakistan, National Council for Tibb, Govt. of Pakistan is awarding four years Fazil-ut-Tibb-wal-Jarahat (B.U.M.S) and registration certificates to every 4 years qualified Tabibs/Unani Physicians, Doctors. Hanadari Foundation and Qarshi Foundation are prominent patrons of research and development in
Pivotal Concept of Tabiyyat and Its Dynamism

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Fundamental history of medicine proves that Unani System of Medicine is an amalgam of valid concepts and facts which are very rational and logical. It is a medical science based on holistic approach encompassing every single parameter of life as evident from the definition of Tibb that it deals with human body with respect to health and disease and it works not only to maintain the heath but also restores it when it is lost. The concept of Tabiyyat which is related to the body is providing the legend knowledge as pioneer to understand the human physiology. Tabiyyat is known as supreme power which does every physiological function. Its importance in human being has been corroborated by Unani philosophers in very explanatory and comprehensive way. There are seven factors which are considered under the Tabiyyat i.e. Arkan (four basic constituents), Mizaj (temperament), Akhlat (humors), Aza (organs), Arwah, Quwa (energy) and Afal (functions). Tabiyyat is Quwa (power) itself, Tabiyyat is supreme power of the body which is a resultant of whole power of the body or in other words it is taken as that supreme power which governs all the power and function of the body. Tabiyyat is a power by which body functions, so the question arises that what is the centre of this power in the body.

So, this paper will help to understand about the center of Tabiyyat, its existence and to find out, what are the tools of Tabiyyat by which pathway it works and care of body.

Key Words: Tabiyyat, Tools of the Tabiyyat, Quwa, homeostasis, Unani.

Introduction
Phenomenon of life exists only on the earth. As it knows up to great level of faith that living organisms came to exist in a very similar way from bacteria to human beings. In ancient era it was imagined that the life came into existence from bamboos to aphids spontaneously, flies from mud and sweat and production of worms from dirt of canals. Later on Greek and Roman philosophers gave their thoughts to solve this issue somehow and proposed that life was intrinsic to matter and came out according to favorable conditions. Unani philosophers proposed that, in this universe, everything is created from Arkan Arba’a (four basic constituents) i.e. Nar (fire), Hawa (air), Ma (water) and Ard (earth), which cannot be divided further into parts having different characteristics in respect of structure and function; therefore it is called as Mufrad/Baseet (simple). (Majoosi, 2010; Jurjani, 2010; IbnSina, 2010; Qarshi, 2010; Chandpuri, 1998). So everything is having the properties of four basic constituents. Unani scholars illuminated the term Tabiyyat (physic) and its role in the maintenance of health clearly. Hippocrates said that Tabiyyat (physic) is a managing power which works for the welfare of human body involuntarily and unconsciously and is a source of all motion and rest. Tabiyyat is reflected as the supreme power of our body, it is the true definition. (Tabri R, 1997). Nafis said in other words “Tabiyyat” is a power which when found in a natural body itself becomes the first source for its motion and rest" (Nafis I, YNM)

What is Tabiyyat
Renowned philosopher physician and thinker, Aristotle (384-322 BC) is originator for the proposal of the tradition of logic, fact full concepts and development of early physics. He had given
Hararat-e-Ghariziyah is the primary heat that powers all the faculties of body. This heat act as tool for Tabiyat in particular and for all the faculties of the body in general through which all the physiological functions are accomplished. The preservation of the Hararat-e-Ghariziyah makes the body to live longer and delay the age related changes with preservation of Rutubat-e-Ghariziyah. The Basal Metabolic Rate is the minimum energy expenditure for the body to perform all vital functions and it can be correlated with Hararat-e-Ghariziyah to certain extent. Here, the concept of Hararat-e-Ghariziyah and BMR has been discussed in a logical approach.

Key words: Basal Metabolic Rate, Hararat-e-Ghariziyah, Rutubat-E-Ghariziyah, Temperament of Ages

Introduction

The Innate Heat or the Hararat-e-Ghariziyah or Vital Metabolic Activity is the basic, primal form of thermal energy in the organism, which powers digestion, metabolism and transformation. Hararat-e-Ghariziyah or the innate heat is regulated by Medicatrix naturae (Tabiyat) for the normal functioning of the body. Unani scholars proposed that this Hararat-e-Ghariziyah which is found in human beings and other warm blooded animals is produced by burning of rooh and makhsoos ajza-e-ghizai the body. Rutubat-e-Ghariziyah or innate fluid is the quintessence or distillate of the Natural Faculty and its four Humors. Hararat-e-Ghariziyah burns out the Rutubat-e-Ghariziyah as it is the substrate of the former. If there is increased dissolution of Rutubat-e-Ghariziyah, then it eventually weakens the Hararat-e-Ghariziyah. A decrease in Hararat-e-Ghariziyah alters the mizaj relatively towards the Burudat (coldness); gradual increase in coldness with age results in the decline of the faculties, thereby functions of the body and this forms the basis of aging in Unani Medicine. Hararat-e-Ghariziyah can be correlated with the Basal metabolic rate (BMR) as both gradually decline with the advancing age.

Temperature and Body Heat

Temperature is defined as the degree of hotness or coldness measured on a definite scale and body temperature is the degree of heat that is natural to the body of a living being (Merriam Webster) The living beings have been classified into two groups, depending upon how their body temperature is being regulated.

a. Homeothermic (warm blooded) animals: The body temperature of these animals is maintained at a constant level irrespective of the environmental temperature. Birds and mammals including human beings belong to this category.

b. Poikilothermic (cold blooded) animals are those whose body temperature is not constant but varies in accordance to the environmental temperature. Amphibians and reptiles are poikilotherms.

Body temperature is the degree of heat maintained
Leeching (Irshal-e-Alaq) and its Application in Varicose Vein

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The concept of Unani medicine is based on balancing body humours, the imbalance of which causes diseases. According to Unani doctrine, Leech therapy works on the principles of Tanajyae Mawad (Evacuation of morbid humours) and Imalae Mawad (Diversion of morbid humours). The efficacy of leech therapy is attributed through the analgesic and resolvent activities of leeches. The use of Hirudomedcinalis in clinical practice has increased in recent years. The primary indication in plastic surgery has traditionally been venous congestion. However, other reported clinical applications were in varicose veins, thrombophlebitis, and osteoarthritis. In this review, we summarize recent data elucidating the role that medicinal leeches play in the field of varicose vein.

Key words: Irshal-e-alaq, humours, hirudomedcinalis, varicose vein (dawali), tanajyae mawad.

Introduction

Unani System of Medicine is based on the Theory of Humours' given by Hippocrates. Every person is supposed to have a unique humoral constitution, which represents his healthy state with a specific Mizaj (temperament); the Mizaj of a person is expressed as Damwi (sanguine), Balghami (phlegmatic), Safrawi (Choleric) and Sadawi (melancholic). These four humours exist in normal quality and quantity, so the health of individual is maintained. The imbalance in quality and quantity of these humours causes diseases. The treatment methodology of diseases is based on four therapeautic modalities which are Regimenal therapy, Dicto-therapy, Pharmacotherapy and Surgery.8,11. Ibne Sina has mentioned 36 regimes in his famous book, “the Canon of Medicine”. Leech therapy is one of the important modes of Regimenal therapy. Leech therapy has been practised in Egypt as early as 1500BC to treat various ailments for instance nosebleed and gout. Till date leeching is an important treatment modality of Ilaj-bil-tadeeb in which medicinal leeches are applied usually on the affected body parts in order to get rid of the morbid humours. Rufus (1st century) has recommended application of leeches in Qurooh-e-Kohna Mota'afina (chronic infected ulcers) and Kharazee-e-Mutaqarrata (ulcerative cervical lymphadenopathy). Razii (850-923A.D.) has recommended the use of leeches in Qaba (dermatosis), Sa'aafa (Alopecia), Qurooh-e-Balkhiya (Chronic ulcers). Ali Ibn Abbas Majoosi (930-994 A.D.) advised the application of leeches in scatica at the joint. Abul Qasim Zahrawi (936-1036 A.D.) has suggested that leeching should be done at such sites where cupping cannot be performed like on lips and gums.

Leeching The word 'leech' is supposed to be derived from an English word for physician, “Laecce”. Term Leeching is used as one of the method of Istifragh (evacuation) for which leech is placed on the affected area. Leeches have special ability to remove morbid humour from the body and protect the body from various diseases15. In India, about 45 species belonging to 22 genera occur. The common Indian species are Hirudinariagranulosa, H. viridis, H. javanica, and H. manillensis. These species are also common in Burma, Pakistan, Bangladesh and Sri Lanka. The medicinal leech, Hirudomedcinalis is an European species which has been introduced into certain ponds and
PREVENTION OF DEPRESSION THROUGH UNANI SYSTEM OF MEDICINE

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ABSTRACT
Although depression is generally not a preventable condition, lifestyle can play a part in its progression. Unani physicians have described this disease under the topic of Nafsiyat al-Awamid and mentioned in their ancient scripture that making changes in your lifestyle through Ashabbe sitta zoroaria now can offer long-term benefits to your mental health e.g. Harkate sukuun badani. Research suggests exercise is a potent weapon against mild to moderate depression. Physical activity releases endorphins that can help boost mood. Regular exercise is also linked to higher self-esteem, better sleep, less stress, and more energy. Here are some helpful ways explained in this paper for prevention of depression through Unani system of medicine that may assist you in keeping depression at bay.

KEYWORDS: Nafsiyat al-Awamid, Unani system of medicine, Ashabbe Sitta Zoroaria, Harkate sukuun badani.

INTRODUCTION
Depression (major depressive disorder or clinical depression) is a common but serious mood disorder. It causes severe symptoms that affect how you feel, think, and handle daily activities, such as sleeping, eating, or working. To be diagnosed with depression, the symptoms must be present for at least two weeks.

Some forms of depression are slightly different, or they may develop under unique circumstances, such as:
- Persistent depressive disorder: (also called dysthymia) is a depressed mood that lasts for at least two years. A person diagnosed with persistent depressive disorder may have episodes of major depression along with periods of less severe symptoms, but symptoms last for two years to be considered persistent depressive disorder.
- Perinatal depression is much more serious than the “baby blues” (relatively mild depressive and anxiety symptoms that typically clear within two weeks after delivery) that many women experience after giving birth. Women with perinatal depression experience full-blown major depression during pregnancy or after delivery (postpartum depression). The feelings of extreme sadness, anxiety, and exhaustion that accompany perinatal depression may make it difficult for these new mothers to complete daily care activities for themselves and/or their babies.
- Psychotic depression occurs when a person has severe depression plus some form of psychosis, such as having disturbing false fixed beliefs (delusions) or hearing or seeing upsetting things that others cannot hear or see (hallucinations). The psychotic symptoms typically have a depressive “theme,” such as delusions of guilt, poverty, or illness.
- Seasonal affective disorder is characterized by the onset of depression during the winter months, when there is less natural sunlight. This depression generally lifts during spring and summer. Winter depression typically accompanied by social withdrawal, increased sleep, and weight gain, predictably returns every year in seasonal affective disorder.
- Bipolar disorder is different from depression, but it is included in this list because someone with bipolar disorder experiences episodes of extremely low moods that meet the criteria for major depression (called “bipolar depression”). But a person with bipolar disorder also experiences extreme high – euphoric or irritable – moods called “mania” or a less severe form called “hypomania.”

Signs and Symptoms
If you have been experiencing some of the following signs and symptoms most of the day, nearly every day, for at least two weeks, you may be suffering from depression.
- Persistent sad, anxious, or “empty” mood
- Feelings of hopelessness, or pessimism
- Irritability
- Feelings of guilt, worthlessness, or helplessness
- Loss of interest or pleasure in hobbies and activities
- Decreased energy or fatigue
- Moving or talking more slowly
THE VALUE OF HIJAMA (CUPPING) AS A THERAPY IN UNANI SYSTEM OF MEDICINE – WITH REFERENCE TO PROPHETIC MEDICINE

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ABSTRACT

Hijama is a traditional concept thought to help in medical conditions and has become increasingly more popular in certain environments. We present a review on Hijama with its potential applications in Unani system of medicine with a focus on the Islamic perspective of this technique.

KEYWORDS: Hijama, Islamic perspective.

INTRODUCTION

The word Hijama is used in Unani System of Medicine for cupping. It is the application of suction cups to the skin to draw out stagnant, congested blood and Vital Force, as well as other stagnant or morbid humors. Usually, the cups are made of glass, but they can also be made of bamboo, bone, horn or metal. The classical method for creating suction in the cup is to use fire to consume the air within it. But more recently, squeezeable cups with a rubber top, or cups drained by suction pumps are also used.

Hijama (Cupping) may be non-invasive or invasive. Hijama-bil-shurt (Non invasive cupping) is simply placing the suction cups on the skin Hijama bil-shurt (invasive cupping), or Scarification and Cupping, is a form of bloodletting that involves first making an incision on the skin, then applying the suction cups to suck out small amounts of blood. Hijama has become increasingly available to the public in the recent years. “Hijama - therapy is an ancient medical treatment that relies upon creating a local suction to mobilise blood flow in order to promote healing”.[1] It is still practiced in rural areas as it was practiced thousands of years ago, but recently has been acknowledged in the western society. The most interesting fact is that it was recommended by the prophet Muhammad (Peace and blessings of God be upon him (PBUH)) many thousand years ago, however, the western countries were unaware of its effects until recently.[2]

Concept of cupping in Unani system of medicine

Unani system of Medicine is the traditional, indigenous holistic healing system of Western civilization. It was first codified and systematized by the Greek philosopher Physician Hippocrates in the 4th century B.C.E. and subsequently developed and expanded by other physicians, most notably Galen, Dioscorides7 and Avicenna.

The term Unani system Medicine or Unani Tibb is used in Islamic world, it is also known as Greek Medicine. "Unani" is the Arabic word for "Ionian", or Greek.

Greek Medicine was the original source and inspiration for many other natural, holistic and alternative medical systems that developed in Europe and the United States in the 18th and 19th centuries, which include homeopathy, naturopathy and chiropractic. The exemplary life and teachings of its founder, Hippocrates has provided a shining source of inspiration to natural healers down through the ages.[3] Unani System of Medicine founded by Hippocrates (460-377 BC) based on the concept of balancing body humours. Their imbalance causes diseases, whereas restoration of the balance leads to health. Unani medicine involves four elements-earth, air, water and fire; four natures-cold, hot, wet and dry, and four humours-blood or sanguineous humor (which is hot & wet), phlegm (cold & wet), yellow bile or choler (hot & dry), and black bile or melancholer (cold & dry). This system of medicine arrives to find the best possible ways by which a person can lead a healthy life with least sickness. It describes 6 essential factors for maintaining health and preventing diseases called Ashab-e-Salih-e-Zainab, which includes-air, food & drinks, bodily movement & repose, psychic movement & repose, sleep & wakefulness, and evacuation & retention. All diseases can be treated on by pharmacotherapy (Ilaj-bid-dawah), in which drugs of animal, mineral or plant origin are used in crude form,
HOLISTIC APPROACH IN UNANI SYSTEM OF MEDICINE WITH RESPECT TO PHYSIS, HUMOURS AND SIX ESSENTIAL FACTORS

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Abstract - The Unani system of medicine originated in ancient Greece at 5th and 4th century B.C. under the patronage of Hippocrates and was then developed in Arab and Persian lands. Its fundamental framework is based on the deep philosophical insights and scientific principles. This system of medicine is basically holistic in nature and offers preventive, curative and rehabilitative healthcare which takes whole-personality approach towards disease. The real cause of disease is disturbance in the natural body humours. The imbalance in the quality and quantity of these humours leads to disease whereas restoration of this balance maintains the health of a person.

n the holistic belief system, illness and injury are often the result of disharmony in the mind-body-spirit. The disharmony can often come from a dysfunction in any one of these areas. This system offers treatment of disease related to all systems is based on Hippocratic theory if four humours that is Blood (Dam), Phlegm (Balgham), Yellow bile (saffra) and Black bile (sauda) and also the four qualities of state of living human body lie Hot, Cold, Moist and Dry. They are represented as Earth, Water, Fire and Air. The Greek believes were put by rabic physician as seven principles and included Elements (Arkha), Temperament (Mizaj), Humours (Akhlak), Organs (Aza), Pneuma (Arwa), Faculties (Quwa), Functions (Af’al). In this method, it is believed that these principles are responsible for the body foundation and its health as well as disease condition.

In this review paper we will try to explain about strengths of Unani system of medicine and its holistic approach with respect to Tabiat humours and Six Essential Factors in different diseases.

Keywords: Holistic, fundamental, Humours, Temperament, Tabiat

Introduction:

Unani system of medicine is holistic in nature because it includes whole personality towards disease. This system of medicine diagnoses the patient as a whole looking into their all dimensions. It is based on the concept of equilibrium and balance one or more than one of six essential factors which leads to weakening of tabiat (physis) which further leads to alteration in humours and also alteration of emperament (sual mizaj) resulting more weakening of tabiat tends to causation of disease. All diseases are the result of poor management of the six essential factors, beyond the ability of physis or Tabiat to maintain and restore homeostasis. Diseases can be prevented by conscious changes to the person’s diet, behaviour and environment.

Insights of Holistic Approach - The primary goal of holistic medicine is the achievement of optimal health. According to this concept everyone can attain optimal health by gaining proper balance of life. It is a form of healing that considers the whole person including body, mind, spirit and emotions for gaining of optimal health.

Concept of Tabiat (physis) - Hippocrates says that “Tabiat is a managing power which works for the welfare of human body involuntarily and unconsciously is a source of all motion and rest.” Tabiat is reflected as the supreme power of our body. Nafis said in other words Tabiat is a power which when found in a natural body itself becomes the first source for its motion and rest. Tabiat has been provided as an essential parameter for the performance of all physiological functions and nutritional requirement of the body or replacement of what is lost after etiobism. It excretes the wastes through the body by conversion of the natural body into a food source for the body. Tabiat is solely responsible for the performance of all physiological functions and nutritional requirement of the body. Adjustment of temperament according to the internal environmental demand is the very important function of the physis. The human body is composed of many different types of cells that together create tissues and subsequently organ systems. They ensure homeostasis and the viability of the human body which is also the function of Tabiat. It is very clear that, the concept of tabiat is more comprehensive and wide. It works always in active and dynamic states in the body at which hysiological functions, morphological expressions and temperaments are maintained and so health is maintained.

Concept of Temperament - It is assumed that all things in nature composed of four primary elements i.e. Fire, Air, Water and Earth. It does or mean that number of elements in nature is four. In fact these represent the basic division of elements in matter that is found in universe as they are associated with compound quality i.e. Fire is hot and dry, Air is hot and moist, Water is cold and moist and Earth is cold and dry. Every organism and matter as a whole is furnished with a temperament upon which their properties and functions of life depend and foods are classified according to temperament, representing unique structural composition but the temperament of human body is determined by humours which themselves are composed of different elements.
Temperament (Peerless Key Factor of Umoor- e-Badan): Definitions, Chemistry, and Biochemistry

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The word temperament is derived from Latin word “Tempor” which means “to mix”. When different qualities of elements act not react by their powers, then previous qualities become diminished and a new moderate quality is developed which is known as Mizaj according to Ibn Nafees the word Mizaj is originated from Arabic word “imitaj” which means “intermixture”. Every organ, plant and animal have almost different structure and functions accordingly to the quality and quantity of its building material. According to Unani medicine building material is same for all animate objects but their quantity vary from organism to organism. So the scientific approach in relation to formation of substance is accurate since beginning. Now this formation can be defined physically and chemically at atomic level in which elements bind together by different types of chemical bonding. Medical science deals with human body that is why temperament formed in human being is the result of intermixture of different elements which results in formation of temperament.

**Introduction**

Temperament Quoting the words of Rudolf E. Siegri, Aqm says: “The Greek used the word “mixture” or mizaj. Emper.” The word temper is derived from the Latin word “tempero” which means “to mix.” This word temper is used in the English language as a synonym of the Arabic word mizaj.

**Definitions of Temperament:** The physicians of Unani medicine have dealt with temperament in detail and they defined it to the best of their knowledge and concepts. The Arab medical authors worked on the theory of temperament most painstakingly and its description is found in the Arab medical literature under the heading “mizaj”. The views of different Unani physicians are as follows:

Abu Sehal Masih: “Because there are so many primary components of the body which are mixed together not in close proximity, it is necessary that the qualities of primary components must be mixed as a whole new qualities arise from inter-mixing of primary components which will be in between their previous qualities, called mizaj.”

The temperament is a quality resulting from the interaction of opposite qualities: resent in elements consisting of minute particles so that most of the particles of each of the elements may touch most of the others. Thus when these particles act and react on one another with their properties, there emerges from their total properties, a uniform quality which is present in all of them. This is the temperament (Mizaj).

Ibn-e-Sina further writes that “Since the primary qualities in the aforesaid elements are four namely hotness, coldness, moistness and dryness, it is obvious that the emperments of the integrating bodies are the products of these properties.”

When different qualities of elements act and react by their powers then previous qualities become diminished and a new moderate quality is developed which is known as mizaj.

Temperament is a quality produced by action and reaction of opposite qualities of body fluids (Akhlut). When these components interact by virtue of their respective powers (qualities) a condition is achieved which is found in equal proportions in all the components of that intermixture; this is called temperament.

Dawood Antaiq: “Mizaj is a uniform quality which reginates by the action and reaction of four elements which are divided into smaller particles so that the maximum particles of each can mix with each other.”

Ayub Ismail: “Mizaj is such type of moderate quality which is originated by the action and reaction of different opposite particles. When elements mix with each other and one element affects the other then they break into smaller particles due to action and reaction process. This process should be of such type that the biochemical structure of each element breaks the strength of quality of other elements, resulting in generation of a moderate secondary quality. This secondary quality is known as mizaj.”

Allama Sadidi: “Mizaj is such type of malmossa (touching) quality which is reduced by the effects of different qualities of smaller particles of elements and the character to adopt the effects of these different qualities.”

Ibn-e-Hubal Baghdadi: “When elements get admixed, most of the elements mix with each other and their various qualities act and react so that heat breaks the cold and cold breaks the heat. Similarly dryness try to breaks wetness and wetness tries to break dryness. Low grade qualities mix with high grade qualities, light weight particles mix with heavy weight particles until a new quality is developed which is equally found in all the component of elements. This new moderate quality is known as mizaj.”

Allama Nafees: “When elements mix with each other they act and react and the results in developing a new moderate quality between the all four previous qualities. This new quality is known as mizaj.”

Shah: “Temperament is the pattern of qualities as a whole which emerges from the action and...
CONCEPT OF SANA’AT (OCCUPATION) AND ITS IMPACT ON THE TEMPERAMENT: A REVIEW

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Abstract- Sana’at (occupation) is included in Asbab Ghayr Daruriyya (Non essential factors) in Unani system of medicine. There is a very close relation between the occupation of an individual and his temperament. It may be in favour of that individual or may not be in favour, according to the temperament of that particular individual and the nature of occupation. It produces related effects in the temperament of individual. This paper is aimed to establish the relationship between the temperament of a person and his occupation.

Key words- Sana’at, Occupation, Non-essential factors, Temperament, Health

INTRODUCTION- According to Unani System of medicine for the existence of everything four factors are responsible which are Material factors (Asbab Madiya), Efficient factors (Asbab Failiya), Formal factors (Asbab Sauriya) and Final factors (Asbab Tamamiya). The intermixing of arkan which are materialistic factors produces mizaj (temperament) which may be of different types according to the dominancy kaifiat of these arkan such as har- ratab, har yabis, barid ratab and barid yabis. The maintenance of this temperament is carried by an innate power of the body which is Tabi’yat. But this temperament is affected by external factors as well as internal factors which are Asbab Failiya. These Asbab Failiya includes Asbab daruriyya and Asbab ghayr daruriyya.1

ASBAB DARURIYYA (ESSENTIAL FACTORS)- These are six in number and essentially influence each and every human body, therefore, they are called Asbabe-Sitta Daruriyya. Nobody could escape from these factors so long he is living. (1) Hawa-e-Muheet (Atmospheric air), (2) Makool-o-Mashroob (Food and drinks), (3) Harkat-o-Sukoon Badani (Physical activity and repose), (4) Harkat-o-Sukoon-Nafsani (Mental activity and repose), (5) Naum-o-Yaqza (Sleep and wakefulness), (6) Ehtisas-o-Istifragh (Retention and elimination).2

ASBAB GHAYR DARURIYYA (NON ESSENTIAL FACTORS)- Some of the non essential causes that are not concerned with every human body and therefore they do not necessarily influence each and every human body but those persons essentially influenced who came across of these factors. These factors are like habit, habitat, profession, sex, temperament, and other social factors, cosmic and terrestrial influences and other influential factors which are against the nature of body etc. These factors influence to those only who come across them, therefore they are considered non essential. These are: (1) Al-Balad (geographical...
HELIOTHERAPY: THEN AND NOW - A REVIEW

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Abstract: The word Heliotherapy derived from the Greece word Helios means the “God of Sun”, refers to treatments that use natural sunlight. Now days the term is also consists of exposure to specific wavelengths of light using artificial sources. It is also called light therapy or phototherapy.. Sun rays has been responsible for the development and continued existence of life on earth. Sunlight has been used since antiquity for various purposes including therapeutic purpose in Roman medicine, Indian medicine as well as Greece medicine. Hippocrates was a great advocate of the Sun’s healing properties. Greece physician used natural sunlight not only for preventive purpose but also for therapy. They thought that lots of diseases come from mis shift of akhlat (humours) and to correct this they were using sunlight for imala mawad (shifting of body fluid). However they don’t know about the composition of sunlight such as UV rays, visible light and infrared rays. The Sun emits all kinds of rays including visible light, gamma rays, x-rays, ultraviolet rays, infrared rays, microwaves and short and long radio waves. In this paper we will only discuss the sunlight of therapeutic range i.e. ultraviolet rays, visible light and infrared rays because these rays are emitted in large quantity and used mainly for therapeutic purposes.

Index terms- Akhlat (humours), Imala mawad, Ultraviolet rays

1. INTRODUCTION

The word Heliotherapy refers to therapeutic use of natural sunlight. Outer part of sun is photosphere with temperature 6000 degree Celsius. Sun is the only source of light and heat to earth. In unani system of medicine there is four forms of treatment i.e. Ilaj bi’l ghiza, Ilaj bi’l tadbeer, Ilaj bi’l dawa and Ilaj bi’l yad. Sunlight therapy comes under the heading of Ilaj bi’l Tadbeer. Ilaj bi’l Tadbeer is a type of therapy which is given in the form of regime to maintain the health of a person. This therapy creates changes in the obligatory causes of health i.e. asbab sitta daruriyya (six essentials of health) on the principal of ilaj bi’l did (heteropathy). It deals with the rules of diet, exercise etc. for improving health and physical and mental well being or any intervention other than medicine that restores the health1. Sun rays are responsible for the development and continued existence of life on earth.

2. HISTORICAL BACKGROUND

Sun is worshiped around the world in early civilization such as Egypt, India and China. These cultures didn’t just worship the sun gods and goddesses, but also consider sunlight to possess healing and curative properties.
RESEARCHES ON ASSESSMENT OF TEMPERAMENT THROUGH VARIOUS METHODS TO VALIDATE AJNAS-E-ASHRA/DETERMINANTS OF TEMPERAMENT

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ABSTRACT
Unani medicine is a unique system of medicine but its basic principles are mostly based on observation that needs scientific validation. The seven physiological factors are needed to be scientifically validated. Among these seven factors, the most controversial topic is the temperament. Although it is the most studied topic and a lot of work & research studies have been done since 25 years and still to be continue. But still we are lagging behind because the work done is scattered and not compiled at one place. Normal temperament of an individual is a condition in which he survives comfortably with all the symptoms of healthy life. For a particular species the temperament is specific, lying in a particular range of maximum to minimum limit within which the temperament for all members of that species is confined. Temperament forms the basis of pathology, diagnosis and treatment. Thus it is necessary to ascertain some parameters to diagnose the human temperament. The Unani physicians have mentioned various parameters for assessment of temperament. However the most appropriate were given by ibn-e-sina which are collectively known as Ajnas-e-Ashra (ten parameters). A number of studies have been done on almost each parameter for determination of temperament which validates the Unani concept that there is a relationship between Ajnas-e-Ashra and Temperament of individuals. The first category in Ajnas-e-Ashra is Touch (Malmas) on which two to three research studies has been done, second one is Muscle and Fat(Laham-wa-Shaham) on which four studies has been done and so on. Purpose of this paper is to amalgamate all the researches at one place which has been done to assess the temperament through various methods. Now the need of hour is to make use of these studies and patent those instruments which have been made to assess the temperament through these studies and use these techniques directly for assessment of temperament instead of Ajnas-e-Ashra. Further research studies related to this topic will be discussed in full length paper.

KEYWORDS- Temperament, Ajnas-e-Ashra, Malmas, Laham-wa-Shaham.

OVERVIEW OF TEMPERAMENT
The literal meaning of Mīczāj according to Naifs is “Intermixture” as he says “The word Mīczāj originated from Arabic word imīczāj meaning intermixture”.11 Mīczāj (temperament) is defined as the new state of a matter having quality different from that of present in the elements or compound before coming into imīczāj (intermixture or chemical combinations), which result from the action and reaction among the contrary qualities and powers in the minute particles (atoms) of different elements (or molecules of different compounds), when they are combined together the resultant new quality in a uniform state or the state of equilibrium emerging after the combination of more than one element is called Mīczāj. For a particular species the temperament is specific, lying in a particular range of maximum-minimum limit within which the temperament for all members of that species is confined.11 The etidal or equilibrium of this distinct temperament i.e. maintenance of constant internal environment (homeostasis) in different individuals leads to a healthy body i.e. normal body functions. Any derangement of temperament from etidal or imbalance of normal temperament results in su-e-mīczāj which causes deranged body functions i.e. diseases. Thus, it becomes necessary to ascertain some parameters to diagnose the human temperament. These parameters must be very accurate and easily applicable; also they must be free of errors, because the human temperament is subtle and very delicate as well as sensitive. Any error or false diagnosis of temperament may be of no use and it will not help in cure of diseases or bringing back the su-e-mīczāj to mīczāj-e-motadil.
Temperament of Aza-e-Mufrida (Simple Organs) - Scientific Validation of Unani Concepts

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Abstract

Background- Mizaj is second one factor after Arkan, in order of the seven important factors. It is one of the cardinal theories upon which the Unani system of Medicine is based and differentiating from others system of medicine. In present there are many views about types of simple organs and their mizaj. The temperament is an intrinsic state which enables an individual to survive and to procreate comfortability and is responsible for distinctive morpho-bio-physio-immuno-psychological identity of an individual.

Aims and Objectives- to put forth a concrete and clear concept of Mizaj of different simple organs in light of Unani concept as well as modern perspectives.

To make people aware about applied aspect of Mizaj aza in respect of restoring Health and prevention and treatment of Diseases

Material Methods- Temperament of Aza mufradah (simple organ) depends upon the specific character of Rutubat Ustaqussiyah of the cells which makes the internal environment of cells. Activity of organ, rate of metabolism, oxygen consumption, amount of Ruh (jauhar-e-Ruh and akhlat latifa ) in organ are major criteria’s of temperament assessment. Health and diseases are depend upon temperament (Structures and physiological functions) of organ. With the knowledge of temperament and distemperament of organ we can restore the heath and treat the diseases.

Conclusion & Future Perspective- After Scientific validation and knowing of different temperament of simple organs of human body, There will be many doors are open regarding prevention, diagnosis and treatment of diseases because temperament is a subjective and objectives parameter which play a key role in preventive, therapeutics and lifestyle recommendations.

Keywords: Unani system of medicine, Aza mufrida, Rutubat Ustaqussiyah, Mizaj Aza

Introduction-

In Unani system of medicine the human body (from cell to body system) is composed of four basic elements: earth, air, water and fire having cold, hot, wet and dry temperaments respectively. The body fluids of organs are composed of four humors: blood, phlegm, yellow bile and black bile. Unani word temperament is often
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Concept of Nutrigenomics Exists in Unani Medical Philosophy

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ABSTRACT

Abstract: The concept of nutrigenomics in medical philosophy has been delineated at length to focus attention the usefulness of diet to ward off malaise and diseases. Attention has been emphasize on nutrigenomic, dimension, background, development, basics and scope for the understanding of the subject matter. As a result the nutrigenomics can be linked with seven fundamental theoretical and functional principles that augments the diet therapy.

Keywords: Unani medicine, Essential Causes, Diet-Therapy, Temperament, Organ Therapy

INTRODUCTION

Unani medicine is one of the ancient healing systems. Hippocrates (460-377 BC) of Greece is its founder [1]. This Greek science of health emphasizes much on the causes, responsible for every state of the body[2].

There are six Essential Causes of health; the Diet is second to the Air. The Diet has been discussed in three folds a) Resources of Diet, b) Diet and Nutrition, c) Diet-therapy. The details of all these give impression about the consciousness of the ancient Unani physician towards “Nutrigenomics”. They were aware that healthy growth and functioning of the body sustains on suitable diet. In accordance to this the physicians had classified the dietary matters on the basis of resources of the diet and the nature of consumers. There are many conditions and restrictions for eatables to use [3].

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Now, this dietary science is emerging in the form of Nutrigenomics. It is the study of molecular relationship in between nutrition and response of genes. Nutrigenomics has a wide scope in future to make personalized dietary advice for health care. Up to what extent Unani medicine deals with the newly emerging concept of nutrigenomics is to be discussed here.

Nutrigenomics defined as:
Nutrigenomics is the study of the effects of foods and food constituents on gene expression [4]. Nutrigenomics is a new science and has several different definitions. Nutrigenomics has been defined as the application of high-throughput genomic tools in nutrition research. It can also be seen as research to provide people with methods and tools who are looking for disease preventing and health promoting foods that match their lifestyles, cultures and genetics. Nutritional genomics is a systems approach to understanding the relationship between diet and
طب پرستینی کے انظیم دوزیت بیان اور زندگی کا کردار

تمام ملکی میزبانوں کی ٹھیکنگ کی اپنی ایک کمپیوٹر کے حساب میں قرار دی گئی ہے۔

میں تقریباً ایک ایک بہتہسیٰ کی سفارشات کے متبادل سے وقت کے کنورے پر ہٹی ہو گئیں، میں یہ کہنے دیکھ رہا ہوں کہ NMI اور نکو فلہٹ کے لیے کامیاب ہوں۔

کچھ اور معاویہ ہیں سمجھتیں کہ نکو فلہٹ کا کام سمجھتیں کہ اس کی تمام سہولتیں کے لیے اضافہ ہو گیا تھا۔

زبان میں ایک پیچھے ہے جنگ کے زمانہ کے سب سے نئے طراحیوں کے

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Sartan (Cancer) in Unani - A Review

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In Unani system of medicine Tahiyyat, is a supreme planner of the body to create the healthy environment within the body and prepare to fight against the disease. If Tahiyyat is strong, then a man does not suffer from a disease easily; if it weakens, a man becomes prone to disease easily. Broadly speaking Tahiyyat is considered as the real healer of the body. In cancer disease, controls of Tahiyyat on cell division become loss. There are two major causes like Genetic factors and Coefficient factors essential & non essential factors are responsible for the weakness of Tahiyyat. Other cause of cancer is total disorder of metabolic system of the humours, particularly the phlegm and black bile humours. That is, it means that all four of the humours are out of balance. Due to weakness, Tahiyyat cannot revert the composition of Akhliat on its normal position. A cure is most likely if treatment is begun at the earliest stage. Avicenna notes: "When the cancer is advanced and well-established, it will not cure." So on the basis of Unani system of medicine, firstly modification of Tahiyyat and its tools, Preventive aspects in the form of advice on how to get a balanced diet and get adequate exercise were common place regaining the humoral balances by giving purgatives, laxatives, bloodletting, emetics, diuretics and enemas were employed to rid the body of excess and morbid humours. So, the principle of management of sartan described in Unani medicine is totally emphasized upon to prevent the collection of sauda with the help of venaecion (fas'ād), use of melanogogue drugs like Consouatarafaxa, Citrulluscolocynthisand. The present review paper deals with the brief Unani concept, etiology, Iusool-e-ilaj and ilaj of Sartan.

Key Words: Sartan, Non essential factors, Sauda, Rebalancing, Unani Medicine.

INTRODUCTION
Cancer is hyperproliferative disorder that involves transformation, dysregulation of apoptosis, proliferation, invasion, angiogenesis and metastasis.¹ Cancer is a significant global healthcare problem, with an estimated worldwide incidence of 10 million new cases per year, 46% of which are in developed countries. Mortality is high, with more than 7 million deaths per year.² According to National Cancer Registry Programme estimates, 700,000 to 900,000 new cancer cases occur in India every year. The WHO has estimated that about 15 million new cancer cases will be diagnosed each year by 2020 worldwide.³ Also by 2020, overall mortality from cancer will increase by 104%, and the increase will be 5-fold higher in developing than in developed countries.⁴ Millions of people die every year with different type of cancer such as lung cancer and mesothelioma from inhaling asbestos fibers and tobacco smoke, or leukemia from exposure to benzene at their workplaces. In the developed countries, cancer is the second leading cause of death accounting 21% (2.5 million) of all mortality. In the last century, great advances were made in modern medical system in cure and prevent of this disease. However, success rates are very low. Cancer has become the second leading cause of death worldwide after heart disease.

Unani view of cancer
The knowledge of Sartan (cancer) in the Unani (Greco-Arabian) systems of medicine can be traced to ancient times (131-200 A.D.) The renowned Unani physicians Galen (129-199AD), Rhazes (854-925), Abulsaeis (936-1013), and Avicenna (980-1037) were make familiar with cancer. Galen (Jālinūs) was the first to deal with tumors, including cancer, in a systematic way. He 

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Pivotal Concept of Tabiyat and Its Dynamism

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Fundamental history of medicine proves that Unani System of Medicine is an amalgam of valid concepts and facts which are very rational and logical. It is a medical science based on holistic approach encompassing every single parameter of life as evident from the definition of Tibb that it deals with human body with respect to health and disease and it works not only to maintain the health but also restores it when it is lost. The concept of Tabiyat which is related to the body is providing the legend knowledge as pioneer to understand the human physiology. Tabiyat is known as supreme power which does every physiological function. Its importance in human being has been corroborated by Unani philosophers in very explanatory and comprehensive way. There are seven factors which are considered under the Tabiyat i.e. Arkan (four basic constituents), Mizaj (temperament), Akhlat (humors), Aza (organs), Arwah, Qawa (energy) and Afsal (functions). Tabiyat is Qawa (power) itself, Tabiyat is supreme power of the body which is a resultant of whole power of the body or in other words it is taken as that supreme power which governs all the power and function of the body. Tabiyat is a power by which body functions, so the question arises that what is the centre of this power in the body.

So, this paper will help to understand about the center of Tabiyat, its existence and to find out, what are the tools of Tabiyat by which pathway it works and care of body.

Key Words: Tabiyat, Tools of the Tabiyat, Qawa, homeostasis, Unani.

Introduction
Phenomenon of life exists only on the earth. As it knows up to great level of faith that living organisms came to exist in a very similar way from bacteria to human beings. In ancient era it was imagined that the life came into existence from bamboos to aphids spontaneously, flies from mud and sweat and production of worms from dirt of canals. Later on Greek and Roman philosophers gave their thoughts to solve this issue somehow and proposed that life was intrinsic to matter and came out according to favorable conditions. Unani philosophers proposed that, in this universe, everything is created from Arkan Arba’a (four basic constituents) i.e. Nar (fire), Hawa (air), Ma (water) and Ard (earth), which cannot be divided further into parts having different characteristics in respect of structure and function; therefore it is called as Mufrad/Baseet (simple). (Majoosi, 2010; Jurjani, 2010; IbnSina, 2010; Qarshi, 2010; Chandpuri, 1998). So everything is having the properties of four basic constituents. Unani scholars illuminated the term Tabiyat (physic) and its role in the maintenance of health clearly. Hippocrates said that Tabiyat ( physic) is a managing power which works for the welfare of human body involuntarily and unconsciously and is a source of all motion and rest. Tabiyat is reflected as the supreme power of our body, it is the true definition. (Tabri R, 1997). Nafis said in other words “Tabiyat” is a power which when found in a natural body itself becomes the first source for its motion and rest”. (Nafis I, YNM)

What is Tabiyat
Renowned philosopher physician and thinker, Aristotle (384-322 BC) is originator for the proposal of the tradition of logic, fact full concepts and development of early physics. He had given
DEFINITION AND COUNT OF A’DĀ MUFRADA (SIMPLE ORGANS): A CRITICAL REVIEW

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ABSTRACT

Purpose: This paper aims to direct the unani scholars to research and analyze the things and make them more clear and accurate. This paper also giving the direction that how the listing and understanding of A’dā basītā (simple organ) should be done and research must go on to validate the A’dā basītā in the light of definitions given by unani scholars and modern histology. The A’dā Mufrada (simple organs) comes on number four in Umur Ṭabī‘yya. Ali Ibn Abbas and Ibn Sina says akhāt are the proximate principles for the human body, but the more proximate are A’dā e basītā which are composed of akhāt and A’dā Aliya (A’dā) are composed of A’dā e basītā. A’dā Mufrada are also known as A’dā basītā A’dā mutashābih al-ajza’i. A’dā Mufrada is defined as the organ which consists of the smallest part of that resembles exactly to the whole organ. A simple organ is therefore, homogeneous in their structure throughout e.g. a piece of bone is also known as a bone, as applied for the whole bone. (Ibn Sina 980-1037). The definition completely confirms to the description of tissues available today. Infact the Tibbī physician call the tissues as A’dā basītā (simple organ). These A’dā are said to be made up of primary combinations i.e. combination of the smallest unit of A’dā known as khāliyya (cell). These A’dā Mufrada should be reviewed and revised for their anatomical, physiological, morphological and histological knowledge but it must be remain on the definition of A’dā Mufrada which is given by unani scholars and they may be concluded that either they are single or compound like: Sharāiyān, Awirīd, Mukh, Zufīr, Sha’rā. On the basis of definition and organization of A’dā Mufrada, the list given by unani scholars must re-organized.

KEYWORDS: Unani, Definition and count of simple organs, A’dā Mufrada (simple organs).

INTRODUCTION

Definition and types of A’dā Mufrada
Majosī defined in his book Kawwil Ulys Samma Al-Tibbiyya (Libri Regna) 930-994⁴.⁵,⁶ A’dā mutashābih al-ajza’i are single and basīt so their resemblance of a part of that organ is just similar to the whole, likewise whole is also resembles to its smallest part. These A’dā are Izām, Ghudrīf, A’sāb, Sharāiyān, Awirīd, Ghishāh, warṭ, Ribāṭ, šaḥf, Lašm, Sha’rā, Zufīr and Jīdī. There are seven categories of above mentioned single A’dā: majosī categorized simple members into seven types: (1) Gha’darīf & Izām, (2) Ribāṭ & Warṭ, (3) Awirīd, (4) Sharāiyān, (5) Lašm, Sha’rā: These are those soft structures which are comprised of large amount of oily matte. Ghishāh and Ribāṭ consists of large amount of adipose tissue. It is of two types- Sameen: šaḥf which is thin, less viscous and have less ability to solidify or liquid šaḥf. Sameen are found in muscles and Ghishāh. Riwaq: type of šaḥf which are thick and viscous or solid šaḥf, & Ghudad, (6) Ghishāh & bashara, (7) Zufīr, & Sha’rā⁷. Abu Sahl Maseerī (972-1010)⁸,⁹,¹⁰ described A’dā into two groups A’dā mufrada and A’dā murakkaba. A’dā mufrada are those whose smallest part is homogenous to the whole. According to maseerī A’dā mufrada are Izām, Gha’darīf, A’sāb, Zufīr, Ribāṭ, Warṭ, Urooq, Lašm, Sha’rā, Warṭ, Ghishāh, Jīdī.⁴,⁵,⁷,¹⁷ Ibn Sina’s (980-1037)⁴,⁵,¹⁷ in his book Al Qanoon Fil Tib mentioned A’dā mufrada has the members of body derived primarily from the akhāt, just as the akhātare derived primarily from the Ṭark. Simple A’dā means homogenous and indivisible. These are those organ whose structure is homogenous throughout, so that their names described them in all part. For e.g. Lašm, A’sāb, Izām, because the part of Lašm and Izām have similar function as that of whole organ that is why they are also known as A’dā mutashābih al-ajza’. These are: Izām, Ghudrīf, Ribāṭ, Warṭ, Ghishāh, Lašm, A’sāb, Sharāiyān, Awirīd.⁴,⁵,¹⁷ Definition by Al Hasan Aljunjami in his book Zakheera Khunarami (Shaḥi) (1042-1136)⁴,¹³: A’dā yaksan are those A’dā if a piece is taken among them, the exact name and qualities of that piece would be as same as to the whole.⁴ For example Izām, Lašm, Jīdī. Lašm from different parts of the body carries same properties which makes Lašm.⁴ These A’dā are also known as A’dā basīt means mutashābih al-ajza’. A’dā basītā: Izām, Ghudrīf, Lašm, A’sāb,
REASONABLE AND SCIENTIFIC APPLICATION OF PIGEON’S EXCRETA IN THE CURE OF ACUTE ABSCESS

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ABSTRACT: Surgery has its sound existence from the ancient times, its evidences are there as in the form of Surgical Papyrius (Edwin Smith’s Papyrus) reflects the features of the Egyptian Medicine (1700 B.C). Sushruta Samhita a source of Ayurveda also shows the surgical practice in the early Christian era. Later on in the medieval period many doctors of Greco Arabic medicine earned the fame in this field. The leading surgeons are Abul Qasim Zahravi, Ibn-al-Quf, Ancient Mesopotamian, Egyptian, Greek, Roman, and Indian, physicians agreed that animal excrement has valuable medical uses. Herophilus, founder of the great medical school in Alexandria early in the third-century BC, introduced camel dung and camel urine into Greek medicine... The hugely influential Greek physician Galen used pigeon excreta in wound dressings. Primal Unani scholars like Jatindro And Bhun Sina categorized the diseases in three forms viz., Sá’ Mithá, Sá’ Turkirá, and Tafarruq-i-Istíl (Discontinuity). Acute abscess is an inflammatory condition (Maraz Murakkab), which has three fates: (1) Thálláli (Resolution), (2) Taqaysyl (Suppuration), (3) Taqiyjár (Fibrinose). Khurár Híd (acute abscess) is Maraz Murakkab due to presence of all three types of Maraz. Definition of Khurár in Unani medicine is that an inflammatory swelling filled with pus and accompanied with redness and pain. Usual e lâj of abscess is Taqiyjár and Tashfi. For this Mufajjir-i-Awrrám, Muyaffi and Munnaqi Advia were being used to wipe out Khíf e Fasída from the cavity, and to help the body to heal the wound. There is a scientific approach behind the use of pigeon’s excreta which was used as Mufajjir-i-Awrrám as it is highly acidic in its white part which helps in the opening of abscess. Today there are chemicals which are being used to change the physiological conditions by altering the pH like Magnesium sulphate topical, Sulphacetamine Sodium topical and Urea topical. Taqiyjár and Tashfi of Abscess are now done by incision and drainage along with antibacterial, anaesthetics and antiseptics drugs. Pigeon poop’s chemicals and their role will be discussed in this paper.

Index terms: Sá’ Turkirá, lâj bíl yád, Khurár, Pigeon’s excreta. Abscess, Unani

Introduction

Since very ancient times, Surgery (lâj bíl yád) has always been an element of treatment in Unani System of Medicine. Surgery is a primeval medical area of expertise that uses operative manual and surgical techniques for investigation and/or treatment pathological condition, to improve bodily functions or appearance or to repair unwanted ruptured area (for example, a perforated ear drum). Unani physicians were pioneers in surgery and had built-up their own instruments and techniques. They practiced surgery and wrote many significant books, for instance Kitáb-al-Tasrif by Abul Qasim Zahravi, Kitáb-al-Umda fil Jarahat by Ibn-al-Quf, Kamil-us-San’a by Ali Abbas Majooji etc. An Arab Unani physician, Abul Qasim Zahravi, wrote a book entitled Kitáb al-Tasrif li-man ‘ajza ‘anit -Ta’leef with illustrations of surgical instruments, consisted of 30 volumes on medicine, surgery, pharmacy and additional health sciences. The last volume of the book has 300 pages, is devoted only to Surgery. He treated Surgery as a separate subject for the first time in the history of Medicine. He described a number of procedures, inventions, and techniques, including tonsillecctomy, tracheotomy, craniotomy, thyroidectomy, extraction of cataract, removal of kidney stones, caesarean section, dentistry etc. In ancient times, Unani surgeons did perform several surgeries like brain surgery, laparotomy and plastic surgery. They were master in general and local surgical procedures in accordance to equipment and technology present at their respective times. In Unani System of Medicine, certain categories of drugs are used in cases where surgical interventions are needed. Dafar-e-Tauqfání Advisa: (Antiseptic drugs) - Cinnamomum camphora (Kaafoor), Azadirachta indica (Nim), Santalum album (Sandal) etc. Haabis-e-Dam Advisa: (Styptic drugs)- Alum (Shibb Yamání), Quercus infectoria (Mizd), Polygonum bistorata (Anjhir) etc. Mudammel-e-Qurooh Advisa: (Wound healing drugs) - Dracaena cinnabari (Dam al-A khwayn), Soap stone (Sang Jarahat), Red Ochre (Gerú) etc. Mukhdár Advisa: (Anaesthetics)-Datura innoxia (Jawz al-Máthál), Hyoscyamus alba (Ajvá’in Khurásání), Lactuca sativa (Khál) etc. Musakkín-e-Alam Advisa: (Analgesics)- Colchicum autumnale (Saranjaan), Syzygium aromaticum (Qarafal), Khoutam Advisa: (Cicatrizants)- calcified shell (Sadaf Sokhta), Slaked lime (Ashak Magsool), Numinulite (Shadina) etc. Mufajjir-i-Awrrám: birds dropping, pigeon’s dung, alsi, arand etc. Mufajjir-i-Awrrám: (concoctus of swelling) daqiq ek kundur , zif, khatmi, alsi.

Abscess

Background Infections have always been a main complication of surgery and trauma and have been acknowledged for 4000–5000 years. The Egyptians explained some concepts about infection as they were able to prevent putrefaction, testified by mummification skills. Medical and surgical papyriuses also depict the use of alarves and antiseptics to prevent infections. This ‘prophylaxis’ had also been known earlier by the Assyrians, although less well documented. It was described again independently by the Greeks. The Hippocratic teachings show the use of antimicrobials, e.g., and vinegar, which were widely used to irrigate to open infected wounds before delayed primary or secondary wound healing. A credence common to all these civilizations, and indeed even afterward to the Romans, was that, whenever pus localized in an infected wound, it was needed to be drained. Galen recognized that this localization of infection (suppuration) in wounds, inflicted in the gladiatorial arena, predominantly after drainage (pus bonum et laudabile). Sadly, this dictum was misunderstood by many later healers, who thought that it was the
THE RUH (PNEUMA)- THE CONCEPT WITH CLARITY

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Abstract: Ruh (Pneuma) is one of the basic factor studied under "Umoor-e-Tabiiyath" (The factors of physic). Ruh stands for "Pneuma", which is an ancient Greek word represents "breath". Pleural form of Ruh is Arwah. It also represents such constituents, which the body receives from atmospheric air and without which sustenance of life cannot be imagined. In Unani classical literature there are many views about Ruh. In religion and philosophy it has been described as synonymous to soul and psyche (nafs). Ruh obtain from external air. It gives the materialistic source (Mudda) of all powers proper functioning. Renowned Unani physicians Rubban-Tabiri used term power as the synonym of Ruh. Due to different views about Ruh, it is need today to put forth a concrete definition and description of Ruh.

In this paper we will report the proper definition, its substance, origin, and its modern perspectives.

Index terms: Ruh, Qawa (Power), Materialistic Source (Mudda)

1. INTRODUCTION

In Unani medicine, basic factors are classified into seven main groups which are called "Umoor-e-Tabiiyath". They are: dananoos (Element and working principle of the body), namely: Arkan (Elements), Mizaj (Temperament); Akhlat (Humors), Ata (Organs); Arwah (Life spirit), pneumonia; Qawa (Faculty); and Ashar (Action). Ruh is an Arabic word stands for "Pneuma". In the Arabic the word Ruh connotes different meanings. It is also used for Arq (yar) which is obtained from extraction of plants. In religion and philosophy it has been described as synonymous to soul and psyche (nafs). Sometimes it is used for those minerals which evaporate after converting into vapours like mercury and sometimes it is used for power (qawa). All biochemical substances which are present in human body and produce energy and gives stimulus of different kinds of power for proper functioning. Some physicians have misconceived that general energy as Ruh. They have described Ruh as energy and contained that Ruh is produced by qawa (functional faculty). It is actually absorbed from atmospheric air into blood through lungs and produce energy by oxidation of energy yielding substances. So oxygen is a major part of Arwah. For understanding of concept of Ruh it is necessary to understand, what is Hawa-e-Muheet, Hawa-e-Muhshtanak, JauharRuh and Naseem. Here we will clear the concept of Ruh in respect of all gases which burn with fine humours (Lateef Akhlat) in the light of older concept to present view.

2. Ruh Defined As-

Unani physicians have described Ruh in different ways: they also differ to a great explaining its source. Some have considered it is materialistic while some others immaterial. According to some physicians the source of Ruh is external air while some others have denied it. Having a considered Ruh is not the atmospheric air as such; instead it is produced in the heart by atmospheric air and light part of 'Akhlat'.

According to Galen (129-200 AD),

"Ruh is a part of atmospheric air which entered the lungs from the air through the respiration and then into the heart."

Mujasz (938-994 AD) and Some physician have described Ruh as a non-physical entity and they have held Ruh as a vehicle of nafs.

"Abu Sahl Masashi (1010 AD) was the same opinion as Galen said about Ruh:"

"Ruh is inhaled inside through the respiration and there it undergoes some changes and gets converted into Ruh-e-haywan (animal soul)."

Ibn sina (908-1037 AD) also described Ruh as a physical entity, but committed an error in differentiating between Naseem (light part of external air) and Ruh. He says-

"The air is element (nous) for our body and arwah. This air is a constituent of our body and soul, in addition, it is a sort of help which constantly达 to soul and sustain it and Ruh is produced by delicate and vapo urous part of humours in the same way as organ are formed by dense and earthen part of humours."

"Allama Bukharauddin Nafis (1409-1449 AD), a devoted followers of Ibn-e-Sina, has advocated this view in his commentary of Mujasz al-Qanoon refuted Galen' view in this regards. He writes:

"Since Ruh is strengthened by food and it is weakened when food is stopped, it is proved that Ruh is produced by humours. If respiratory air had been responsible for the production of Ruh as Galen had stated. Suspension of food would not have weakened the body."

Hakim Ali Gilani (1558-1606 AD) Writer of Jan Lilasharaahain, also accept that production of the Ruh begins in lungs.

So, if we conclude all above concepts and definition of Ruh then we can say that,

"Ruh is a part of Umoor-e-Tabiyyath and it is a materialistic pillar, matter of Ruh depends on two things, first one is jauharRuh which is based on external air (hawayanmuheet) and second is Fine humour (Khit Lateef) which is the jauhar-e-fa'l (Functional component) of diet."

3. SUBSTANCES (Mudda) OF RUH AND ITS ORIGIN

According to Ibn-e-Sina and his followers Substances of Ruh are JauharRuh and Khit Lateef. JauharRuh is found in the atmospheric air and Akhlatatiyeh (fine humours) is a part of Khit (Blood), which diffuse and produce energy. When the air is inhaled through inspiration, this essence of air is separated in the lungs. It get separated from the air by the selective power (swarat-e-Mamayyazah) and is absorbed into blood and becomes a part of body. When this essence comes into contact with blood, jauharRuh comes into existence. So the oxygen outside the
Rūḥ (Pneuma) and Rūḥ Haywānī (Vital Pneuma): An Evidence Based validation For Its Existence

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ABSTRACT Purpose: This manuscript will justify the existence of Rūḥ and Rūḥ-e-Haywānī and its mechanism to perform its function for the survival of the body. As Rūḥ is a materialistic thing so, what is needed to form Rūḥ and Rūḥ-e-Haywānī will be described in detail with scientific validation.

Background: Unani physicians had described Rūḥ and Rūḥ-e-Haywānī in different ways; they also differ to a great explaining its source. Some considered it as materialistic while others as immaterial. According to some physicians the source of Rūḥ is external air (Hawā-e-Muḥīt), but some considered Rūḥ is not the atmospheric air as such; instead, it is produced in the heart by atmospheric air and light part of ‘Akhlāt’. And When this Rūḥ reaches in heart, gets its temperament and becomes Rūḥ-e-Haywānī.

Methodology: For the existence of any matter four causes are essential which was first established by Aristotle i.e. Asbāb-e-Mādiyya (Material Causes), Asbāb-e-Fāʿila (Formal Causes), Asbāb-e-Sūriyya (Final Causes). So, in this article these four causes in relation to Rūḥ and Rūḥ-e-Haywānī are elaborated on the basis of evidence based knowledge present with respect to time.

Conclusion: All the functions done by cardiovascular system (Quwwat Haywānīya) are due to specific oxygen demand in blood which perfuse those organs, tissues and cells, which consist the A’dā-e-Haywānīya. Oxygen which dissolved in blood and performs its function of oxidation to initiate ATP formation is Rūḥ. Blood (Plasma and RBC) is just a carrier not a component of Rūḥ. So, Rūḥ is same throughout the body.

Future Prospects: The chapter of Rūḥ and Rūḥ-e-Haywānī must be taught in this way, so that the concept gets clear to students in a scientific manner. Likewise Rūḥ-e-Nafsānīya and Rūḥ-e-Tabībīya must be considered in this manner.

Keywords: Unani, Rūḥ, Rūḥ-e-Haywānī, Asbāb-e-Rūḥ Haywānī.

Introduction: Arwāḥ (Pneuma) is one of the basic constituent of human body. Different meanings, definitions, theories and concept are present in Unani system of medicine regarding Rūḥ. Inspite of this a Unani scholar is unable to explain it on the basis of current knowledge. So, in this paper the key mechanism of Rūḥ and Rūḥ-e-Haywānī is given on the basis of Asbāb-e-Arba’a (four essential causes) which covers all the essential aspects which are responsible for the existence of Rūḥ Haywānī. After going through this article one will get the clear concept of Rūḥ and Rūḥ Haywānī.

The existence of human body comprises from seven essential constituents which are called as "Umoore-Tabaiya". These are the working principles of the body, namely Arkān (Elements), Mizāj (Temperament), Akhlāt (Humors), A’dā (Organs), Arwāḥ (Life spirit, pneuma), Quwā (Faculty), and Afa’l (Action). Rūḥ is an Arabic word stands for "Pneuma", which is an ancient Greek word represents “breath”. In the Arabic the word Rūḥ defines different meanings: for an instance, it is also used for Arq (Itar: which is obtained from extraction of plant), in religion and philosophy it has been described as synonymous to soul and psyche (Nafs). It is used for those minerals which evaporate after converting into vapours like mercury and, it is also used for Quwwat (power). [1, 2]

Rūḥ and Rūḥ Haywānī Is Defined In Unani Literature As: Unani physicians had described Rūḥ and Rūḥ-e-Haywānī in different ways; they also differ to a great explaining its source. Some considered it as materialistic while others as immaterial. According to some physicians the source of Rūḥ is external air (Hawā-e-Muḥīt), but some considered Rūḥ is not the atmospheric air as such; instead, it is produced in the heart by atmospheric air and light part of ‘Akhlāt’. [3, 4, 5]

Here below referenced classical Unani literature of Rūḥ and Rūḥ-e-Haywānī is being described below: Aristotl (384-322 BC) explains that Rūḥ forms in heart and then reach to other A’dā e –Ra’isa, and perfuse in them which results in specific temperament of Rūḥ with respect to particular organ. Galen (129-200 AD) defined that “Rūḥ is a part of atmospheric air which entered the lungs from the air through the respiration and blood absorbs it, then reach into the heart.” He hoped that one day would come when Rūḥ would be isolated from the air. Erasistratus beleives Rūḥ is a bukhari jism (Vaporous body) and due to its Latafat (lightness) it cannot be seen. He assumes that arteries have only Rūḥ and are blood less. Majusi (930-994 AD) described Rūḥ Haywānī as it exists from Hawā-e-Mustanshaq and Lateef Bukhar (Lightest vapours) of
Representation of Aʿḍāʾ Mufrida (Simple Organs): Then and Now

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ABSTRACT

Background: The homogenous organs found in human body which are solid in consistency are known as Aʿḍāʾ mufrida. According to majority of Unani physicians the simple organs are Izām (bones), Ghadārīf (cartilages), Ribāt (ligaments), Awtār (tendons), Aghshiya (membranes), Lāhm (muscular tissue), Aṣāb (nerves), Sharā'yin (arteries), Awrida (veins), and Shahm (fat). Some physicians also added Ashʿūr (hairs), Mukh (bone marrow) and Aṣfūr (nails).

Purpose: The list of simple organs present in Unani classical literature is macroscopic, but with respect to time and advancements, as there is huge gap of time, the vision and approach to visualize the things had been reached to nanotechnology from macroscopic that was only done through naked eyes. Therefore, it is much needed to see the simple organs under the vision of present knowledge and represent them if needed.

Methodology: Organs which are constituted of similar basic units would be kept as simple organs; otherwise it would be compound organ. The work had been done with the help of advancement by histologist.

Conclusion: In Unani literature it must be analyzed and re-visualized to update the chapter of Aʿḍāʾ mufrida (simple organs). If there are some organs which are not of similar basic units must be excluded.

Key Words: Aʿḍāʾ mufrida, simple organs, homogenous organs, human body, Unani.

INTRODUCTION

Today we are in the twenty first century, our lifestyle changes with every dawn. It is more evident in the field of science; various inventions and discoveries are taking place daily and adding something new to life. The same is with the medical science which is directly related with the human health. Now the work that should be done first in the field of Unani medicine is to provide substantial experimental based to its philosophy and theories on the lines of modern research and techniques may be adopted. In this way Unani medicine could become more authentic and reliable.

As a research scholar of Kulliyat my subject is related with the fundamentals of Unani medicine, which deals with all aspects of human life. The following paper is about the definition and count of Aʿḍāʾ mufrida (simple organs) which are essential tool of the Quwa (powers) and Afaʿl (functions).

This paper aims to direct the Unani scholars to research and analyze the things, and make them more clear and accurate. This work is to validate the Aʿḍāʾ basīta in the light of definitions given by Unani scholars and modern histology, also giving the correct list of Aʿḍāʾ mufrida (simple organs).

Aʿḍāʾ mufrida (simple organs) comes on fourth number in the sequence of Umūr Taḥrīyya. Ali Ibne Abbas Majoosi and
Concept of the Arkān, Its Physical Elements and Non-Physical Entity (Naar): A Critical Review

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ABSTRACT

Background: Arkān are primary constituents of human body and others. It is the first keystone of Umūr-e-Tabī′yya (the factors of physic), comes under the Asbāb-e-Maddiyya (Material Causes) which are the building blocks of everything in the universe.

Aims and Objectives:
To clear the classical theories about numbers of Arkān in the light of ancient as well as present concepts.
To consolidate the concept of ArkānArb′a (four basic elements) and evaluate the reasons for accepting Naar (energy) as an unsur (element) by Atilbajamhoor.
To developed scientific literature about the Naar (Energy) as a non-physical entity.
To put forth a concrete and scientific logical concepts of Arkān, in the light of present perspectives.

Conclusion and Future perspectives:
After Scientific validation and strong literature of Arkān, there will be many doors are open regarding researches related to elementology (Physical elements and non-physical elements). With the knowledge of biological elements, we can restore the health, prevent & treat the diseases in future.

Key Words: Unani Medicine, Asbāb-e-Wujood (Causes of Being), Asbāb-e-Maddiyya (Material Cause), ArkānArb′a (four basic elements), Non-physical entity & Naar (Energy).

Asbāb-e-Wujood (Causes of Being):
Aristotle's (384-320 B.C) gives concept of four causes of being. These are the material, formal, efficient, and final cause. According to him, the material cause of a being is its physical properties. The formal causes is the structure or direction of a being. The efficient causes are the primary source of the change or rest & the final causes are the end, that for the sake of which a thing is done. If we discuss these Asbāb (Causes) regarding human body then we classified them into following types.

- AsbābMaddiyya (Material Causes): The first cause to create a being. It includes elements, humours, organs &pneuma. The immediate subjects are organs and pneuma. The remote is the humours & the most remote is elements. [1]
- AsbābFā′ila (Efficient Causes): The essential & non-essential factors which brings about a change or maintain the states of the body. [2]
- AsbābṢuriyya (Formal Causes): AsbābṢuriyya is the particular and specific forms of body which are come in existence, after actions & reaction of
ARWAH: A Study with a Different Approach

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ABSTRACT:

Purpose: To understand the features of Arwah, one of the factors of human existence. In this paper we will describe the proper definition of Arwah, its existence, origin, and modern perspectives.

Background: Ruh stands for “Pneuma”, an ancient Greek word which represents "breath". In Unani classical literature there are many views about Ruh. In religion and philosophy it has been described as soul and psyche (Nafs) but Ruh is obtained from external air and is a materialistic source (Madda) of all powers. Plural of Ruh is Arwah. Arwah is one of the seven constituents of Umur Badan (the factors of life). It is the most misunderstood and least talked topic; especially what we perceive from Arwah. It is the need of today, to put forth a brief description and classification of Arwah.

Methodology: Matter exists in one of the three forms: solids, liquids and gases. The gaseous component of human body will be taken into account in this paper. Along with the discussion of the gaseous component of the body, its classification will also be discussed. So, in this article the gaseous component of human body in relation to Arwah is being discussed on the basis of existing literature with respect to the present knowledge.

Conclusion: Arwah can be defined as the gaseous component of the human body. Arwah can be classified into two: Arwah Salih and Arwah Radliyya (or Arwah Mahmuda and Arwah Ghayr Mahmuda). Arwah Mahmuda consists of the gases that are vital for human body. They can further be classified into oxygen, carbon dioxide and nitric oxide as all three of these are essential for physiological existence of human body. Arwah Radliyya consists of all the other gases that are found in human body and are not beneficial for human body in any sense, rather may be proved harmful for the human body. But the classification of Arwah is based on the quantities of gases present i.e. even Arwah Mahmuda when deviated from their normal physiological quantities (or limits) comes under Arwah Radliyya.

Future Prospects: Applied aspect of Arwah Mahmuda can be further studied based on the normal physiological limits and impact of Arwah Mahmuda.

Index terms: Unani, Arwah, Ruh, Arwah Mahmuda, Arwah Radliyya.

INTRODUCTION: Biology, biophysics and biochemistry are the sciences that are required to understand the human body. Chemistry is the basic science that deals with the structure of matter, and the study of the human body/matter begins with chemistry. It is essential for other sciences, including physiology, pathology, pharmacology, and micro biology. Basic chemistry takes into account matter, the states of matter, and energy in all various types. Matter is a term that describes all things occupying space and having mass.1 Matter is the
Application of Hammām (The Steam Bath), in the Past and Present; An Overview

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ABSTRACT

Background: Tibb Unani is a complete medical science based on holistic approach encompassing every single parameter of life. Preservation and restoration of health is done by Kulliyat Usool e-Ilāj (Principles of treatment). Treatment is of four modes Ilāj bi’l Tadbīr (Regimenal Therapy), Ghidhā (Dietotherapy), Dawā (Pharmacotherapy), and Yad (Surgery). Amongst them Ilāj bi’l Tadbīr is of utmost importance as it makes minimal use of drugs & Hammām belongs to this regimen.

Aim and Methodology: Hammām has become a rare sighting in the prescriptions of Unani Practitioners and not getting its due importance. This paper aims at reviewing the existing literature so as to discuss about the health benefits of Hammām and how it could be put into application in terms of convenience and practicality instead of traditional Hammām. For this, controlled temperature and humidity of the room could play a best role.

Conclusion: Controlled temperature room that has a range of hotness and humidity, by regulating it, we can create the surroundings and environment of different rooms of Hammām in a single chamber. Final definition of Hammām should be as follows “It is a technique in which the body is kept under hot and humid surroundings to get required healthy measures”.

Index terms: Unani, Traditional Hammām, Steam bath.

Introduction: Tibb Unani is a complete medical science based on holistic approach encompassing every single parameter of life. Preservation and restoration of health is done by Kulliyat Usool e-Ilāj (Principles of treatment) based on Ashbāb e-Badan (Body), Alāmat (Sign & Symptoms), Usool-e-Tashkhiṣ (Principles of Diagnosis) and Ilāj. Treatment is of four modes Ilāj bi’l Tadbīr (Regimenal Therapy), Ghidhā (Dietotherapy), Dawā (Pharmacotherapy), and Yad (Surgery). Amongst them Ilāj bi’l Tadbīr is of utmost importance as it makes minimal use of drugs & Hammām belongs to this regimen.
Rūḥ Nasīmî (A boon or a bane): An extensive study with concept of Arwāḥ Maḥmūda and Arwāḥ Raḍḍiyya

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Abstract:

Purpose: This paper will justify that in spite of the fact that Rūḥ (Rūḥ Nasīmî) circulates in the whole body and is essential for the performance of different physiological functions by different organs, it is only so if it is present within its physiological limits. When it gets deviated from its normal range, it rather becomes damaging to the body.

Background: Unani physicians had described Rūḥ and Arwāḥ in different ways with respect to their times and era. They have described its importance as well. The path they guided towards the understanding of Rūḥ can now easily be perceived in the light of present advancements.

Methodology: Rūḥ Nasīmî is essential for the body as it assists heart and provides material for the continuous production of energy required for life. In this article, the essentiality of Rūḥ Nasīmî will be discussed centered on the fact that it can be classified as Arwāḥ Maḥmūda or Arwāḥ Raḍḍiyya on the basis of its quantity.

Conclusion: There is a specific range under which Rūḥ Nasīmî is proved to be essential for the normal physiological functioning of the body but outside this range, it exerts serious pathological effects on the body.

Future Prospects: The significance of normal range of carbon dioxide and nitric oxide (which comes under Arwāḥ Maḥmūda) and the effect of the deviation from their normal range on the body can be studied further.

Index terms: Unani, Arwāḥ Maḥmūda, Rūḥ Nasīmî.

Introduction: The subject of study in Unani medicine is human body and components of this study comprises of Umūr Tabī‘yya, Hālāt-i-Badan, Asbāb and ‘Alā‘amat. The first thing that comes under this is: Umūr Tabī‘yya. It is also called Umūr Muqawwima because the structure and function of human body is based upon them. There are seven factors described in Umūr Tabī‘yya i.e. Arkān, Mizāj, Akhlāq, A‘dā, Arwāḥ, Quwā and Af‘āl. When these seven factors combine in human body, the resultant entity that is formed is Tabī‘at (physics). Everything that is formed or perceived as matter possess one of the three states either it is solid, liquid or gas. So this principle is also valid upon human body, although being perceived as solid, consists of all the three states of matter i.e. solid, liquid and gas. So, the gaseous part is described as Arwāḥ in Unani system of medicine. Therefore, in this paper Arwāḥ is being discussed for its credibility and classification under the advancement of knowledge to express this factor with more clarity as per time. The much needed description regarding the topic
DFT, Hirshfeld surfaces, spectral and in vivo cytotoxic studies of 7a-Aza-B-homostig mast-5-eno [7a,7-d] tetrazole

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A B S T R A C T

The DFT (B3LYP) calculations on a synthetic steroidal molecule 7a-Aza-B-homostig mast-5-eno [7a,7-d] tetrazole, C29H44N4, have been performed. The molecular structure, IR and NMR (13C and 1H) spectra of the present compound were interpreted using experiments (XRD, FTIR, NMR) as well as theoretical, B3LYP/6-311 + G(2d,p), calculations. The vibrational bands appearing in FTIR are assigned with great accuracy using an imbedded modes. Molecular properties like HOMO–LUMO analysis, chemical reactivity descriptors, MEP mapping, dipole moment and Mullikan’s atomic charges have been presented at the same level of theory. The theoretical results are found in good correlation with experimental data. Moreover, the Hirshfeld analysis was carried out to ascertain the secondary interactions and associated 2D fingerprint plots. The in vivo cytotoxicity of 7a-Aza-B-homostig mast-5-eno [7a,7-d] has also been carried out against brine shrimp nauplii by lethality bioassay.

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1. Introduction

The advanced quantum chemical approaches and computational techniques play crucial role in understanding the structures, spectra and various properties of biologically important molecules. Among the quantum chemical theoretical approaches, the DFT methods have proven to be exceptionally effective due to their low computational cost and high accuracy. Moreover, DFT methods converge fast with basis set size during geometries optimization than other methods. The present studies aim to interpret structure, spectra and molecular properties of a steroidal tetrazole, 7a-Aza-B-homostig mast-5-eno [7a,7-d] that exhibits remarkable antimicrobial and cytotoxic activities [1]. Tetrazole constitutes a class of nitrogen containing heterocyclic compounds exhibiting robust biological activities [1–7]. Recently, tetrazole and its derivatives have successfully been employed as carboxylic acid isosteres. The applicability of tetrazoles derivatives can be estimated from the fact that dimethyl thiazolyl diphenyl tetrazolium salt is commonly employed as standard, in MTT assay to quantify the respiratory activity of live cells in cell culture, although it kills cells in the process [8,9]. Nowadays, tetrazolium compounds are extensively employed in the synthesis of drugs, explosives and other functional materials having applications in medicine, agriculture, material science etc [10]. The heat of formation for 49 tetrazole derivatives was computed using density functional theory [11]. Since tetrazole derivatives have broad applications in medicine, biology, agriculture and in ammunitions [12–15] therefore there is a continuous surge for newer application of tetrazole and its derivatives [16–20]. In the present work, an interesting compound of the tetrazole family, 7a-Aza-B-homostig mast-5-eno [7a,7-d], has been chosen to study its structural and spectroscopic properties due to its biological relevance. To the best of our knowledge, the quantum chemical calculations on this compound using DFT (B3LYP) theory have not been explored so far. B3LYP functionals have been chosen due to its popularity in quantum chemistry as well as accuracy associated. In the present study, the molecular structure, IR, NMR spectra and various other molecular properties have been studied at B3LYP/6-311 + G(2d,p) level of theory. The vibrational bands appearing in the FTIR are interpreted using harmonic force field calculation.

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ISOLATION, CHARACTERIZATION, BIOASSAY AND X-RAY CRYSTALLOGRAPHIC STUDY OF PHYTOCONSTITUENTS FROM Bixa orellana LEAVES

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A new ellagic acid derivative, 3-O-methyl ellagic acid dihydrate (4), along with three known phytoconstituents, 4-acetylsorcinol (1), 4-hydroxyphenethyl methyl ketone (2), and docosanolic acid docosyl ester (3), were isolated from the leaves of Bixa orellana L. for the first time. Their structures were elucidated on the basis of chemical and physical data (IR, UV, 1H NMR, 13C NMR, and mass). Herein, we report the isolation, extraction, characterization, and biological activities of phytoconstituents isolated from the leaves of Bixa orellana. The structure of compound 4 was further confirmed by X-ray crystallographic studies. The isolated compounds 1–4 were screened for their antimicrobial activity by the disc diffusion method using ciprofloxacin and amphotericin B as standard drugs. Moreover, compound 4 was evaluated for its plausible anticancer activity using MTT assay.

Keywords: Bixaceae, isolation, ellagic acid dihydrate, X-ray crystallographic analysis.

The use of plants to treat various human ailments dates back to ancient times. Written records suggest their use to be at least 5000 years old, practised by Sumerians, while the archaeological records suggest even more older dates [1]. Plants have a long history of use in the treatment of cancer. This can be inferred from the fact that plant-derived drugs, most notably taxol, vinblastine, vincristine, and camptothecin, have significantly improved the effectiveness of chemotherapy against some of the deadliest cancers. In fact, over 60% of currently used anticancer agents are derived from nature [2]. Hence, the quest to search for new biologically active compounds possessing novel biological applications remains an active area of research.

In this context, Bixa orellana L. or Annato, a bushy tree belonging to the family Bixaceae, is relatively unexplored with respect to its biological potential.

The present paper reports the isolation, characterization, X-ray crystallographic study and biological activity of the novel ellagic acid derivative 3-O-methyl ellagic acid dihydrate (4) along with three known phytoconstituents: 4-acetylsorcinol (1), 4-hydroxyphenethyl methyl ketone (2), and docosanolic acid docosyl ester (3), isolated from the leaves of Bixa orellana L. The structure of all the isolated phytoconstituents was established on the basis of physical and chemical data (IR, UV, 1H NMR, 13C NMR, and MS spectral analysis). To the best of our knowledge, compound 4 has been isolated for the first time from this plant source.

![Chemical structure of compound 4](image)

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Morphological, structural, molecular docking and biocidal studies of newly synthesized Ppy-MA/TiO$_2$ nanocomposites

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The present paper describes the chemical oxidative polymerization of pyrrole and methyl anthranilate, Ppy-MA, in different molar ratios in high yields. The polymerization takes place in the presence of H$_2$O$_2$ and Fe$_3$O$_4$. Subsequently, electrically conducting nanocomposites Ppy-MA/TiO$_2$ were obtained by in situ chemical oxidative polymerization using TiO$_2$ nanoparticles in different molar ratios. The structure and morphology of black powdered copolymers, Ppy-MA, and their nanocomposites, Ppy-MA/TiO$_2$, were ascertained using Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy, transmission electron microscopy, X-ray differential, thermogravimetric analysis, and differential thermal analysis. These studies have shown that the nanocomposites, Ppy-MA/TiO$_2$, are thermally more stable, good electrical conductors as compared with their copolymers Ppy-MA.

The copolymers Ppy-MA prepared from different monomer ratios and its nanocomposites Ppy-MA/TiO$_2$, have been screened for their possible in vitro antibacterial activity against Staphylococcus aureus (ATCC 29213), Streptococcus mutans (ATCC 25175), Streptococcus pyogenes (MTCC 435), Staphylococcus epidermidis (MTCC 435), Bacillus cereus (MTCC 430), Corynebacterium xerosis (ATCC 373), Acetobacter bovis (Clinical isolate), Escherichia coli (ATCC 25922), Klebsiella pneumoniae (MTCC 109), Proteus vulgaris (MTCC 426), and Pseudomonas aeruginosa (MTCC 424) using ciprofloxacin and gentamicin as standard drugs. Moreover, the anthelmintic activities of copolymers Ppy-MA and its nanocomposites Ppy-MA/TiO$_2$, have also been estimated against the standard drug, albendazole. Copyright © 2015 John Wiley & Sons, Ltd.

Keywords: copolymerization; nanocomposite; morphology; conductivity; antibacterial activity; molecular docking

INTRODUCTION

"Conducting polymers" are referred for polymers that can conduct electricity as good as metals. These lighter weights, corrosion resistant, efficient and long-lasting polymers are attracting the worldwide attention because of their robust applications such as chemical and biological sensors, solar cells, actuators, and energy storage devices.[1–3] Conducting polymers generally consist of carbon backbone having extended π-electron conjugated system. The delocalized electronic states and the restriction on the extent of delocalization impart conducting polymers p-type semiconducting nature.[4] As these polymers are redox active, so their electronic conductivity can be modulated by doping, addition of fillers, and/or by intercalating with a variety of inorganic materials.[5] Among the broad class of conducting polymers, poly-para, polyaniline, and polypyrrole are the most studied ones because of their ease of preparation, availability, high conductivity, and good stability.[6–8] Moreover, it has been found that the composite bearing either pyrrole/aniline/thiophene has enhanced dielectric and electromagnetic shielding effect.[7]

Recently, organic polymer-based inorganic nanoparticles commonly known as nanocomposites are one of the most synthesized substances because of their much wider applications most notably in sensor devices, biomedical and biomimic materials, microwave absorption, electrochromic and electronic devices, structural and optical materials, and in electronics and aerospace industry.[6–11] The varied properties of nanocomposites may be due to synergic interaction between organic and inorganic phases generating smart materials having unique properties. One of the sticking features of these intrinsically conducting polymers is that it is possible to tune their electrical

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Computational and anti-tumor studies of 7a-Aza-B-homostigmast-5-eno [7a, 7-d] tetrazole-3β-yl chloride

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ABSTRACT

The present paper reports the detailed computational study including molecular docking of a biologically active steroidal tetrazole, 7a-Aza-B-homostigmast-5-eno [7a,7-d] tetrazole-3β-yl chloride. The molecular structure, IR and NMR (13C and 1H) spectra of the tetrazole were interpreted by comparing the experimental results with the theoretical, B3LYP/6–311G(d,p) calculations. The vibrational bands appearing in the FTIR are assigned with great accuracy using animated modes. Molecular properties like HOMO–LUMO analysis, chemical reactivity descriptors, MEP mapping, dipole moment and natural atomic charges have been presented at the same level of theory. The theoretical results are found in good correlation with the experimental data. Moreover, the Hirshfield analysis was carried out to ascertain the secondary interactions and associated 2D fingerprint plots. The in vitro anti-tumor activity of 7a-Aza-B-homostigmast-5-eno [7a,7-d] tetrazole-3β-yl chloride has also been carried out against nine human tumor cell lines. Doxorubicin is used as a standard drug for the in vitro anti-tumor screening.

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1. Introduction

Organic chemistry is dominated by heterocyclic compounds having a share of more than half as compared to the rest of known organic compounds. The key reason for such a vast array of heterocyclic compounds is due to their practical applications in pharmaceuticals, agriculture and technology. With regard to medicine, tetrazole derivatives have numerous applications notably as anti-inflammatory and anti-tubercular agents [1], as bioisosteres of carboxylic acids as well as its surrogates [2,3], lipophilic spacers generating compounds with anti-hypertensive, anti-allergic and antibiotic activities [4], and as antibacterial, antifungal, analgesic and anticonvulsant agents [5]. Tetrazole, a heterocyclic compound bearing four nitrogen atoms constitute an important subset of this outstanding class of compounds bearing three isomers 1H-tetrazole, 2H-tetrazolium and 5H-tetrazole. Tetrazole derivatives have witnessed a bigger leap as compared to other N-rich heterocyclic derivatives [6]. The tetrazolyl functional group has often been considered as a carboxylic acid replicate in drugs, because of its nearly equivalent pKa value and planar delocalized system which provides maximum nitrogen content [7]. The planar structure along with the presence of four Nitrogen atoms in conjugation with each other imparts both donor and acceptor electronic properties to the tetrazole ring. These factors are cardinal in potential applications of tetrazole derivatives acting as anti-hypertensive, anti-allergic, and antibiotic candidates [8,9]. Moreover, steroidal heterocyclic derivatives are extensively used in the treatment of a variety of cancers, notably in breast, endometrial, prostatic hyperplasia and prostate carcinoma [10,11]. Modified steroidal compounds having D-ring attached with the heterocyclic groups have been shown to possess high anti-proliferative activities against prostate and breast cancer cell lines [12,13]. For instance, steroidal tetrazoles are used as inhibitors of steroidogenic enzymes such as CYP19A1/aromatase and 30 CYP17A1/17 α-hydroxylase for the treatment of hormone dependent cancers and other hormonal disorders [14,15]. Recently, Food Drug Administration (FDA) of USA has approved the use of 17 α-hydroxylase inhibitor bearing a D-ring tethered pyridine, for the treatment of hormone-refractory prostate cancer [16].
Herbo-mineral based Schiff base ligand and its metal complexes:
Synthesis, characterization, catalytic potential and biological applications

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ABSTRACT
 Schiff base ligand, (L), derived from condensation reaction of 1,7-bis-(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione, (curcumin), with pyridine-3-carboxamide, (nicotinamide), and its complexes of Co(II), Ni(II) and Cu(II) ions, containing 1,10-phenanthroline as auxiliary ligand were synthesized and characterized by various physico-chemical techniques. From the micro analytical data, the stoichiometry of the complexes 1:1 (metal: ligand) was ascertained. The Co(II) and Cu(II) forms octahedral complexes while the geometric structure around Ni(II) atom can be described as square planar. The catalytic potential of the metal complexes have been evaluated by recording the rate of decomposition of hydrogen peroxide. The results reveal that the percent decomposition of H2O2 increases with time and the highest value (50.50%) was recorded for Co(II) complex. The ligand and its complexes were also screened for their in vitro antibacterial activity against Escherichia coli, Staphylococcus aureus, Klebsiella pneumoniae, Streptococcus pyogenes and Pseudomonas aeruginosa. The relative order of antibacterial activity against S. pyogenes, S. aureus and E. coli is Co(II) > Ni(II) > Cu(II) > L; while with P. aeruginosa, K. pneumoniae the order of activity is Cu(II) > Co(II) > Ni(II) > L. The anthelmintic screening was performed using Phereistima posthumus. The order of anthelmintic activity of ligand and its complexes is [(Phen)CoCl2] > [(Phen)CoCl2] > [(Phen)NiCl2] > (L).

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1. Introduction

The Indian spice turmeric contains a unique component named as 1,7-bis-(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione, (curcumin), [1-3]. Curcumin is a typical substituted β-diketone ligand which resembles with acetylacetone. It exhibits keto-enol tautomerism (Scheme 1). Besides, being a food flavor and colorant, turmeric has been used in traditional Chinese and Ayurvedic medicine for around 4000 years [1]. Thus, the recent sensational headlines “Curry against Alzheimer”, has its roots from these traditional medicines. It has been found that the incidents of Alzheimer’s disease in rural Indian people of age group 70-80 who eat curry dishes on a daily basis, is about 4.5 times lower than that of Americans of the same age group [4].

In the past few decades, a large number of studies have reported the medicinal properties of curcumin like anticancer, anti-inflammatory, antimicrobial, anti-epileptic, antioxidant, antiviral, antihepatotoxic, and anti-Alzheimer’s disease. In fact, in herbal medicine turmeric has even been termed as the ‘multi-anti spice’, and the major component curcumin has been referred as ‘curecumin’ [5,6]. Clinical studies of curcumin in humans showed that it is safe even at high daily doses of 10-12 g with minimal side-effects [6,7]. The last few years have witnessed a dramatic increase in the studies pertaining to the synthesis, characterization and biological application of curcumin based metal complexes. Curcumin based metal complexes are found to possess anticancer, antihistokinetic, antibacterial/antifungal activity, biological imaging/ radiomicaging and anti-viral/anti-HIV activity [8-14]. Recently, a group of researchers developed a novel Cu(II) complex containing curcumin and bathophenanthroline as chelating ligand and studied their DNA interaction properties [15]. In view of these cardinal findings we wish to report a new curcumin based Schiff base ligand and its Co(II), Ni(II) and Cu(II) complexes containing 1,10-phenanthroline as auxiliary ligating moieties. The ligand and its complexes have been characterized by various spectroscopic techniques. These compounds have also been studied for their antimicrobial and anthelmintic activity. Moreover, catalytic potential have also been explored.

2. Experimental

2.1. Materials and Instrumentation

All the chemicals and solvent were procured from Merck except curcumin which was purchased from Himedia and were used as received.

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Synthesis, characterization, molecular docking and biological studies of self assembled transition metal dithiocarbamates of substituted pyrrole-2-carboxaldehyde

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ABSTRACT

A series of self assembled 3d transition metal dithiocarbamate, M[cdtc] (where M = Mn(II), Fe(II), Co(II), Ni(II) and Cu(II)) have been synthesized and spectrosopically characterized. The bidentate dithiocarbamate ligand Na2[pdct] (disodium-1,4-phenylenediamino(pyrrrole-1-sulfino)dithiocarbamate) was prepared by insertion reaction of carboxydifluoride with Schiff base N,N'-bis(1H-pyrrol-2-ylmethylene)-benzene-1,4-diamine (11) in basic medium. The simple substitution reaction between the metal halide and Na2[pdct] yielded the title complexes in moderate yields. However, the in situ procedure gives high yield with the formation of single product as evident by TLC. Elemental analysis, IR, 1H and 13C NMR spectra, UV-vis., magnetic susceptibility and conductance measurements were done to characterize the complexes. M[cdtc]. All the evidences suggest that the complexes have tetrahedral geometry excepting Cu(II) which is found to be square planar. A symmetrical bidentate coordination of the dithiocarbamate moiety has been observed in all the complexes. The conductivity data show that the complexes are non-electrolyte in nature. The anti-oxidant activity of the ligand, Na2[pdct] and its transition metal complexes, M[cdtc] have been carried out using DPPH and Cu[cdtc] was found to be most effective. The antimicrobial activity of the Na2[pdct] and M[cdtc] complexes have been carried out and on this basis the molecular docking study of the most effective complex, Cu[cdtc] has also been reported.

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1. Introduction

The synthesis and characterization of metal complexes bearing sulfur donor ligands continues to increase at an unabated pace, because of their resemblance to several important biomolecules, such as amino acids and vitamins [1]. Dithiocarbamate ligands are organosulfur compounds having remarkable complexing ability. This may be due to the small bite angle of CS2 group which can coordinate almost with all metal ions even in unusual oxidation states like Ni(IV) and Cu(III) [2]. In some of the metal dithiocarbamate complexes the spin-crossover behavior is also reported. The rich coordination chemistry of dithiocarbamate ligand is well documented and established [3]. Their complexes are finding newer applications in many areas of chemistry, biology and industry [4]. For instance, (CH3)2NCSS is used for the separation of various metal ions as their metal chelates [5] while its Sm-complex is found to possess strong anti-cancer properties [6]. Similarly, several diakyl dithiocarbamate salts have shown promising biological properties like anti-alkylation [7], cytotoxicity and antitumor [8] as well as anti-HIV properties [9]. Diethyldithiocarbamate has also been used to minimize the initiation of acquired immune deficiency syndrome (AIDS) in human immunodeficiency virus infected individuals via inhibition of NF-kappa-B activation. Recently, Wang et al. have reported the cytotoxicity of Au(III) complexes with 5-arylidene-3-(pyridin-2-yl)-4,5-dihydropyrazole-1-carbothioamide derivatives, which showed higher cytotoxicity than the cisplatin against HeLa cell [10]. It was also reported that Au(III)-dithiocarbamate complexes displayed antitumor properties with almost no nephrotoxic side-effects [11]. Besides, being biologically robust, dithiocarbamates owe special attention to as biochemicals. The Manganese complex of dithiocarbamate (maneb), iron complex (ferbam), zinc complex (ziram or zineb) are well known pesticides with an estimated annual global consumption of 25,000-35,000 metric tons [12]. From the structural point of view dithiocarbamate ligands and their complexes are very interesting and intriguing. They have the ability to bind in a monodentate as well as bidentate fashion generating varied structures like macrocycles [13], capsules and cylinders [14], cages [15], cryptands [16], catenanes [17–18] and loops [19]. These structures are mainly constructed by exploiting the self-assembling nature of the dithiocarbamate ligand [20].

In continuation of our interest in the self-assembled dithiocarbamates [21–22] and their transition metal complexes, we, herein report the synthesis, characterization, spectral and antioxidant studies of a
Potent acetylcholinesterase inhibitors: Synthesis, biological assay and
docking study of nitro acridone derivatives

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ABSTRACT

The reaction of o-halogeno acid with aniline derivatives and their subsequent cyclization reaction yielded the
acridone derivatives. The series of nitro acridone derivatives were prepared by Ullmann condensation in presence of
copper as catalyst and were characterized by FTIR, 1H, 13C NMR and mass spectra. The structure of 5-
nitro-(2-phenyl amino) benzole acid (4) was confirmed by X-ray crystallography and was found to crystallize in
P21/c space group. The in vitro efficacy of the compounds for their acetylcholinesterase (AChE) and antimicrobial
inhibitory activities have been evaluated against the standard drugs Ampicillin and Gentamycin against Gram
positive and Gram negative bacteria. 1,7-Dinitroacridone was found to be the most potent AChE inhibitor (IC50 =
0.22 μM). Moreover, the compounds have been screened for their antioxidant activity using the DPPH assay. Also,
docking study results were found to be in good agreement with the results obtained through in vitro experiments.
The docking study further predicted possible binding conformation.

1. Introduction

Chemical modification of bioactive components is one of the most
commonly employed approaches in drug discovery research because of
its promising results [1]. The occurrence of heterocyclic derivatives in
bioactive natural products and pharmaceuticals has made them signif-
nicant synthetic targets. Acridones are an exclusive kind of heterocy-
cycle, a subclass of acridines with a basic structure consisting of 9(10H)-
acridone which is present in a large number of natural products and
synthetic compounds that are known as multi-targeted agents with bio-
medical perspective. Acridone-based derivatives were first pursued for
their antimicrobial activity against bacteria, parasites and fungi [2,3]. It
is an important organic compound bearing tricyclic nitrogen containing
ring and was first used in 19th century against malaria [4]. Acridone
consists of two benzene rings fused together having a keto group and
a nitrogen atom at 9th and 10th position, respectively, resulting in a
planner structure. This chemical scaffold bears a wide range of biological
activity including anti-cancer [5], anti-malarial [6], anti-viral [7,8] and
modulation of multi-drug resistance (MDR) [9–11]. On the molecular
level, the planner structure of acridone molecule facilitates its interac-
tion with nucleotides leading to intercalation with DNA and RNA
strands. Interaction of DNA with various biologically important organic
molecules has been extensively reviewed in the literature [12–14]. A
series of 1-amino thioacridones were designed as DNA intercalating
agents with covalent bond formation potential [15]. The intercalation
of acridone molecule with DNA and RNA is primarily based on its π–π
stacking interactions with base pairs of double-stranded nucleic acids.
These interactions of acridine analogs have also been confirmed by X-
ray crystallography revealing ring overlap between acridine ring and
base pairs of nucleic acid [16]. The biological consequence of these in-
teractions is the disruption of DNA functions in the cells, serving as a pre-
requisite for effective anti-cancer activity of acridine analogs [17].
Moreover, acridone molecule also possesses hydrophilic and lipophilic
balance which facilitates its transverse through biological membranes
to reach into the nucleus, exerting their action [18].

Acridone is highly fluorescent and stable against photo degradation,
oxidation, and heat [19,20]. It is a small molecule with no charge. Sev-
eral acridone derivatives have been used as fluorescent labels for peptides
[21], amino acids [22], antibodies [23] and substrates for catalysis [24]. A
series of acridone linked with nitro group have been developed as po-
tential anticancer agent, among which nitracrine appeared to be very

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Spectral, morphological, and antibacterial studies of conducting copolymers, Ppy-MA, and their nanocomposites, Ag@Ppy-MA

Shahab A. A. Nami, Mohd. Shoeb Khan, Mohammad Arshad, Mo Aqib Raza Khan, and Imran Khan

Pyrrrole and methyl anthranilate were copolymerized in different molar ratios in the presence of H₂O₂ and FeSO₄ at ambient temperature and pressure to obtain efficient conducting copolymers, Ppy-MA. These conducting copolymers, Ppy-MA, were in situ reacted with silver nanoparticles to generate nanocomposites, Ag@Ppy-MA, which exhibit enhanced electrical conductivity. The spectra and morphology of different copolymers, Ppy-MA, and their nanocomposites, Ag@Ppy-MA, were analyzed using Fourier transform infrared, SEM, tunneling electron microscopy, X-ray diffraction, thermogravimetric analysis, and differential thermal analysis. These studies have shown that the nanocomposites, Ag@Ppy-MA, are thermally more stable and good electrical conductors as compared with their copolymers, Ppy-MA. The antibacterial activity of the copolymers, Ppy-MA, prepared from different monomer ratios and their nanocomposites, Ag@Ppy-MA, has been carried out using disk diffusion method. The copolymers, Ppy-MA, and its nanocomposites, Ag@Ppy-MA, were screened against the standard drug Ciprofloxacin. The results clearly suggest that the nanocomposites, Ag@Ppy-MA, are better antibacterial agent as compared with their copolymers, Ppy-MA. Copyright © 2016 John Wiley & Sons, Ltd.

Keywords: copolymers; nanocomposites; morphology; antibacterial activity

INTRODUCTION

With the publication of seminal research work on conducting polymer by Heger et al.,[11] this field has witnessed an exponential growth in the synthesis and characterization of newer conducting polymers having intriguing physical and chemical properties. These conducting polymers have found numerous applications ranging from development of semiconductor devices to electronic, electrochromic, optoelectronic, biomedical, and electromechanical devices.[2-5] The presence of delocalized electronic states along with the restriction on the extent of delocalization makes most of the conducting polymers to behave like p-type semiconductors. The conductivity of these redox active polymers can be altered by doping/dedoping, making them suitable candidates for a number of purposes most notably in gas sensory devices. The physical properties of conducting polymers depend on the type and amount of dopants and can be easily modulated at room temperature. The nature and size of the dopant ion influence the mechanical properties like tensile strength, Young’s modulus, viscoelasticity, and electrical properties like conductivity.[6,7]

Conducting polymers can be easily synthesized by chemical or electrochemical methods by oxidizing the corresponding monomers in the presence of an oxidant. Their structure can be modified conveniently by copolymerization or structural derivatization.[8] Among the broad class of conducting polymers, polypyrrole (Ppy), polyaniline, polythiophene, and their derivatives are the most studied ones because of the ease of preparation, wider applications, high sensitivities, and shorter response time even at ambient temperature and pressure.[9] For instance, Ppy thin films have been used as sensors for detection of various gases and volatile organic compounds.[10-13] On the other hand, composites may be defined as substances made up of two or more materials integrated in such a way as to provide enhanced performance as compared with the individual component. These performances lead to improved electrical conductivity,[14] magnetic behavior,[15] catalytic potential,[16] microwave absorption,[17] capacity for drug delivery and controllable release.[18] Corrosion control and inhibition,[19] as efficient antibacterial agents,[20] and many more. Keeping in view of the wide applications of conducting polymers and nanocomposites, we have attempted the copolymerization of pyrrole and methyl anthranilate (Ppy-MA) in various molar ratios using chemical oxidative polymerization. Moreover, we have also synthesized their nanocomposites, Ag@Ppy-MA. These copolymers, Ppy-MA, and its nanocomposites, Ag@Ppy-MA, were spectrally characterized, and their morphology has been studied by scanning electron microscopy (SEM), tunneling electron microscopy (TEM), X-ray diffraction (XRD), thermogravimetric analysis (TGA),
Detailed molecular, structural and spectral studies of bimetallic salt, \([\text{Ni(L)}][\text{CoCl}_4]\) where \(L = 3,7\text{-bis(2-aminoethyl)-1,3,5,7-tetraazaabicyclo(3.3.1)nonane}\)

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ABSTRACT

The present work reports the detailed molecular, structural and spectral studies including DFT, FTIR, FT-Raman, NMR, UVVis. spectrum of a bimetallic salt, \([\text{Ni(L)}][\text{CoCl}_4]\) where \(L = 3,7\text{-bis(2-aminoethyl)-1,3,5,7-tetraazaabicyclo(3.3.1)nonane}\) using DFT/TD-DFT calculations, FTIR, FT-Raman, NMR and UV Vis. spectra. The bimetallic salt, \([\text{Ni(L)}][\text{CoCl}_4]\) was found to crystallize in the space group P1 with unit cell dimensions \(a = 7.1740(15), b = 8.1583(16)\) and \(c = 8.3102(16)\) \(\text{Å}\) as reported elsewhere. The molecular structure, IR and NMR (13C and 1H) spectra of the bimetallic salt were interpreted by comparing the experimental results with the theoretical one using B3LYP/6−31G(d,p) calculations. The vibrational bands appearing in the FTIR and FT-Raman are assigned using animated modes. Molecular properties like HOMO–LUMO analysis, non-linear optical properties, atomic charges and thermodynamic properties have also been studied at the same level of theory. The theoretical results are found in good correlation with the experimental data. Moreover, the Hirshfeld analysis was carried out to ascertain the secondary interactions and associated 2D fingerprint plots.

1. Introduction

The ongoing quest to rationally design and synthesize polynuclear complexes is of significant interest with regard to chemistry, biochemistry and material science. In the vast array of polynuclear systems bimetallic complexes are of utmost importance due to their resemblance with various biomolecules [1–3], their use in catalysis, solar energy conversion as well as in photocatalytic molecular devices [4–6]. For a bimetallic complex the precursor/ligand must function as a receptor possessing two remote binding sites to coordinate metal centers in a synergistic manner [7–9]. The coordinating ligand bearing donor N/O/S atoms bonds the two same or distinct metal centers within a close proximity and generates bimetallic complexes [10,11]. Generally Schiff base condensation between aldehydes/ketones and amines result in the formation of such coordinating ligands. These condensation reactions can be modulated by varying the ratio of aldehydes and amines, temperature as well as the catalyst. These specifically tailored ligands can then be complexed with desired metal ions [3].

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Synthesis, characterization and antimicrobial study of polymeric transition metal complexes of Mn(II), Co(II), Ni(II), Cu(II) and Zn(II)

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ABSTRACT
Salen ligands comprising of α-phenylenediamine (salp) and p-phenylenediamine (salpp) have been synthesized. The salen ligand, salp undergo Schiff base reaction with Formaldehyde and Barbituric acid to generate novel polymeric Schiff base. SBOPA in one instance while the second salen ligand, salpp on Schiff base reaction with formaldehyde and piperazine gives another novel polymeric Schiff base, SBPBA. These polymeric Schiff base ligands, SBOPA and SBPBA generates polymeric metal complexes in high yields on reaction with transition metal acetates, M(CH3COO)x·xH2O where M = Mn(II), Co(II), Ni(II), Cu(II) and Zn(II). The polymeric Schiff bases, SBOPA and SBPBA and their transition metal complexes were systematically characterized, using various spectroscopic techniques. The structure, composition and geometry of SBOPA and SBPBA and their metal complexes was confirmed by spectral techniques (FT-IR, and 1H NMR), elemental analysis, and electronic spectra magnetic moment. On the basis of FT-IR, 1H NMR, electronic spectra and magnetic moment values Mn(II), Co(II) and Ni(II) ion were found to have octahedral geometry while Cu(II) and Zn(II) were found to be square-planar in nature. Thermogravimetric analysis (TGA) was used to evaluate their thermal behaviour and Cu(II)-SBOPA and Cu(II)-SBPBA were found to be thermally most stable. The polymeric Schiff base ligands, SBOPA and SBPBA and their metal complexes have also been screened for their plausible antimicrobial activity. Tetracycline and Micronazole were used as standard drug to study the antibacterial and antifungal activity respectively. The Cu(II)-SBOPA and Cu(II)-SBPBA were found to be most potent antimicrobial agents.

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1. Introduction
The field of Schiff base complexes is developing rapidly due to their wide variety of intriguing structures of the ligands and their metal complexes which generally depends upon the structure of starting aldehydes and amines. Many Schiff base and their complexes have been widely studied because of their industrial and biological applications [1–11]. Some Schiff bases were tested for their fungicidal activity which is related to their chemical structure [12]. Schiff base containing an amine group (−RC=NH−) are usually formed by the condensation of a primary amine with an active aldehydes/ketone. The cross linking agents can also be derived from metal complexes with −OH, −N=O or −S ligands for example, the intra coordination salt such as salicylates, anthranilates and the aliphatic or aromatic amines can form strong five or six membered chelate rings which are able to produce the metal containing crosslinking agents with desired properties [13–16]. The condensation of carbonyl compounds with primary amines is a broadly used reaction. Recently, there has been considerable interest in the chemistry of transition metal complexes of Schiff bases [17–20]. Developments in the fields of inorganic and bioinorganic chemistry have increased the interest in Schiff base complexes since it has been recognized that many of these complexes may serve as models for mimicking biomolecules [21–25]. The Schiff base ligands derived from melamine and their complexes are interesting species in many fields of chemical research because of specific properties, such as metal sequestering in aqueous media and in the formation of supramolecular devices. They are also important ligands for recognizing inorganic and organic cations, anions, and neutral molecules [26,27]. They play an important role in the development of coordination chemistry as they readily form stable

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Synthesis and Morphological Studies of Uniquely Shaped Graphene Oxide@Piperazine-Polyaniline Nanocomposites

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The present study deals with the synthesis and detailed morphological characterization of novel ternary nanocomposites of graphene oxide@piperazine-polyaniline (GO@PP-PANI). The GO@PP-PANI nanocomposites were obtained via traditional polymerization method under low temperature conditions. The facile and sustainable protocol for the synthesis of uniquely shaped GO@PP-PANI nanocomposites is quite high yielding. The formation of ternary composites takes place in presence of graphene oxide (GO) leading to the generation of nanoblock structures. GO has dual role of acting as dopant as well as soft template. The morphology of composite was dramatically altered by the change in mass ratios of GO. The different shapes obtained in the present work were novel. The morphology and microstructure of the copolymers, piperazine-polyaniline (PP-PANI) and their GO@PP-PANI nanocomposites were examined by scanning electron microscopy, transmission electron microscopy, X-ray diffraction, and Fourier transform infrared spectroscopy. The results of thermogravimetric and differential thermal analyses results were of an enhanced thermal stability of the GO@PP-PANI nanocomposites as compared with the PP-PANI copolymers. POLYM. COMPOS., 38:E295-E302, 2017. © 2016 Society of Plastics Engineers

INTRODUCTION

With the successful isolation of a single-layer graphene sheet from graphite, the studies on the synthesis, characterization, properties and applications of graphene have grown exponentially [1]. Graphene is a two-dimensional sheet of carbon atoms having sp² hybridization. In the crystal structure of graphene the carbon atoms are arranged in a honeycomb fashion imparting it exceptional strength, surface area, thermal and electrical conductivity [2, 3]. As compared with carbon nanotubes, carbon nanofibers, and activated carbon [4], graphene is found to be industrially more viable and is extensively used as sensors in semiconductor devices, field-effect transistors, electrodes in batteries, supercapacitors, fuel cells, support for catalysts, etc. [5–13].

Similar to graphene, graphene oxide (GO), obtained by exfoliation of graphite oxide, is a single sheet of graphite oxide bearing tunable oxygen atoms containing functional groups like epoxide, hydroxyl, carboxyl groups on their basal planes and edges [14]. GO is chemically insulating with a large number of defects generated due to the presence of epoxide, phenoxydes, and carboxylic acids on its surface, which disturb its sp² bonding network [15]. Chemical or thermal reduction facilitates the removal of these defects to produce reduced graphene oxide (RGO) and, in this process; it recovers the electrical conductivity by partially restoring the π network [16]. Hence, the oxygen-containing functional groups of GO facilitate the modification on its surface making it a promising material for composites with polymers and other nanomaterials.

Recently, several reports have appeared showing the incorporation of GO into polymer matrices to produce novel nanocomposite materials [17]. Therefore, graphene and its derivatives have been employed as additives with polymers or other materials for the significant enhancement of the targeted properties because of the presence of tunable oxygen atom in the functional groups. Good compatibility with polymer has made GO a promising material for the synthesis of GO@polymer nanocomposites. Further, GO or RGO have also been intercalated or incorporated with polyaniline (PANI) through in situ chemical polymerization to generate tailored nanocomposites have specific properties. For instance, the in situ anodic electrochemical polymerization is employed to prepare PANI-GO and PANI-RGO nanocomposites for potential application in energy storage [18, 19], supercapacitors and transparent conducting electrodes [20, 21]. Hence, GO (or RGO)–PANI composites have triggered considerable research interest in the last few years due to their potential in several technologically important

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Curcumin derived Schiff base ligand and their transition metal complexes: Synthesis, spectral characterization, catalytic potential and biological activity

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ABSTRACT
Curcumin derived Schiff base ligand, (CL), was prepared by condensation of 1,7-bis-(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione (curcumin) with amino ethylene piperazine (AEP). The transition metal complexes of CL were also successfully synthesized and characterized by various spectroscopic techniques. Non-electrolytic nature of complexes was ascertained by molar conductance values. Thermogravimetric analysis confirms that all the metal complexes are stable up to 600 °C. The metal to ligand stoichiometry of synthesized metal complexes was confirmed by micro analytical data as 1:1 (metal:ligand). Co(II), Ni(II) and Zn(II) ion forms the complexes with an octahedral geometry while the geometry of Cu(II) complex can ascribed as square planar by UV–vis and EPR spectroscopic studies. Catalytic power and antioxidant activity of these complexes have been evaluated and results shows that Co(II) complex is catalytically more active while the Cu(II) and Zn(II) complex were found with more potent antioxidant activity, comparatively. The synthesized compounds have also been tested for their in-vitro cytotoxic potential, the obtained results shows moderate to good cytotoxicity on tested human cancer cell lines. The most effective compounds on cell lines MDA-MB-231 and KCL22 was [CL]Cu while on HeLa cell line the ([CL]Zn(H2O)2] was found with prominent cytotoxicity. Anthelminthic activities of these compounds have been performed using Pheretima posthuma. The recorded order of anthelminthic activity of ligand (CL) and their metal complexes was found to have the trend as: [CL]Cu]>[CL]Zn(H2O)2]>[CL]Co(H2O)2]>[CL]Ni(H2O)2]>CL.

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1. Introduction
1,7-bis-(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione (curcumin), one of the most effective constituent of the everyday using turmeric commonly known as Indian spice scientifically termed as curcuma longa. A typical substituted β-diketone that mainly resemble with acetylacetone is the main constituent of the naturally occurring curcumin [1]. The derivatives along with synthetic analogs of curcumin and its various type of in-house synthesized metal complexes are mainly the substances which have attracted scientists and are still receiving paramount attention in that era due to their dramatic and very special properties [2–5]. Curcumin has been found nontoxic for human being up to an everyday dose of 12–14 g.m. for an adult person [6]. It is well known for its medicinal properties since ancient times and was most frequently used in traditional Chinese and Ayurvedic medicines from more than 4000 years [7]. In Ayurveda curcumin is known as a blood purifier and recently, its catalytic ability with different metal ions have been explored which is responsible for reduction of the deposition of metal ions in the human body [8].

Curcumin exhibits keto–enol tautomerism (Scheme 1) depending on nature of the solvent and it can also exist in different types of conformations [9]. It is evident that the enolic form of isomer is comparatively more stable than the keto form due to strong intramolecular hydrogen bonding [10]. The solubility of naturally occurring curcumin moiety is very poor in water at

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Biogenic synthesis of iron oxide nanoparticles using Agrewia optiva and Prunus persica phyto species: Characterization, antibacterial and antioxidant activity

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ABSTRACT

A phytoextract mediated synthesis of iron oxide nanoparticles using Agrewia optiva (Dhaman or Biul) and Prunus persica (Peach) leaf extract as capping and stabilizing agent without using hazardous toxic chemicals via biogenic route has been studied. The biogenic method of synthesis is convenient, rapid, cost effective and ecofriendly. The green synthesized nanoparticles were characterized by Ultraviolet-visible spectroscopy, Fourier transform infrared spectroscopy, Attenuated total reflectance spectroscopy, X-ray diffraction analysis, scanning electron microscopy, energy dispersive X-ray spectroscopy, transmission electron microscopy and dynamic light scattering measurements. The antibacterial study was determined by agar well diffusion method to measure the efficiency of both phyto species extract and its mediated iron oxide nanoparticles against five gram positive bacterial stains such as Staphylococcus aureus (S. aureus), Streptococcus mutans (S. mutans), Streptococcus pyogenes (S. pyogenes), Corynebacterium diphtheriae (C. diphtheriae) and Corynebacterium xerosis (C. xerosis) and three gram negative bacterial stains such as Escherichia coli (E. coli), Klebsiella pneumoniae (K. pneumoniae) and Pseudomonas aeruginosa (P. aeruginosa). The antibiotic Ciprofloxacin and Gentamicin have been used as reference standard drugs for gram positive and gram negative bacterial stains respectively. The antioxidant activity of the phyto extracts and prepared nanoparticles have been performed using 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical assay employing l-ascorbic acid as a standard.

1. Introduction

Nanotechnology is a rapidly growing area of research because of its versatile applications in the area of medical, biological and engineering sciences [1–3]. The chemical, physical, electronic and optical properties of nanomaterials are governed by their shape, size and surface morphology [4]. Nanomaterials can be synthesized by a number of chemical and physical methods such as electrochemical [5], hydrothermal [6], laser ablation [7], lithography [8], microwave [9] and thermal decomposition [10]. However, all these methods are toxic, involve high pressure and energy, and are unreliable and expensive. So, there is an urgent need to develop non-toxic and ecofriendly method to synthesize nanomaterials. Recently, microorganisms and plant materials have emerged as an effective alternative for the synthesis of nanomaterials. This is termed as biogenic approach [11]. This approach involves ecofriendly procedure for the synthesis of nanoparticles that neither involves very less or almost no harmful chemicals nor harsh reaction conditions [12–14]. The major challenges of biogenic synthesis is to prepare the environmentally benign, cost effective, rapid, safe, morologically well defined nanoparticles with required shape and size. The biogenic synthesis of iron oxide nanoparticles is an emerging area of research in nanotechnology. Several nanomaterials of gold, silver, platinum and palladium have been synthesized by different approaches such as by the use of bacteria [15], fungi [16], plants [17] and hard template [18]. Among all these nanoparticles the iron oxide nanoparticles is quite fascinating because of its robust applications such as in clinical medicine [19], biomedicine [20], materials and engineering [21], photo catalysis [22] and bioremediation [23]. While the reducing agent such as sodium borohydride [24], sodium dodecyl sulfate and hydratization etc. have limited application in environment and biomedical

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Design and development of several polymeric metal–organic frameworks, spectral characterization, and their antimicrobial activity

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ABSTRACT

Coordination polymers were obtained by the reaction of metal acetates, M(CH3COO)2·xH2O [where M = Mn(II), Co(II), Ni(II) and Cu(II)] with AFP ligand (AFP = 5,5’-(piperazine-1,4-diylbis(methylene))bis(2-aminobenzoic acid). The AFP ligand was prepared by the one-pot, two-step reaction of formaldehyde, 2-aminobenzoic acid, and piperazine. Structural and spectroscopic properties have been studied by elemental, spectral (FT-IR, 1H NMR, 13C NMR, and UV–vis), and thermogravimetric analysis. UV–vis spectra and magnetic moment values indicate that Mn(II), Co(II), and Ni(II) polymer–metal complexes are octahedral, while Cu(II) and Zn(II) polymer–metal complexes are distorted octahedral and tetrahedral, respectively. The analytical data confirmed that the coordination polymers of Mn(II), Co(II), Ni(II), and Cu(II) are coordinated with two water molecules, which are further supported by infrared spectra and thermogravimetric analysis data. The prepared polymer–metal complexes showed good antibacterial activities against all tested microorganisms; however, the AFP ligand was also found to be effective, but relatively less than their polymer–metal complexes. Along with antibacterial activity, all the polymer–metal complexes exhibit significant antifungal activity against most of the tested fungal strains. The results of antimicrobial activity reveals that the AFP–Cu(II) showed the highest antibacterial and antifungal activity than other polymer–metal complexes.

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1. Introduction

The synthesis and characterization of metal complexes with bioactive organic ligands to produce novel potential chemotherapeutic agents is an area of intense chemical research. Of particular note is the pressing need for new antibacterials to replace those losing their effectiveness because of the development of microorganisms’ resistance [1]. Thus, the discovery of new antimicrobial agents or increasing the effectiveness of previously known drugs is important [2a–c]. Several polymers with notable antibacterial activity have been synthesized by immobilization of low-molecular-weight antibacterial agents onto the polymers [3]. The controlled aggregation of small coordination complex–based building blocks to form large macromolecules is of great interest in both metal ligand and polyoxometalate chemistry [4]. Particularly, the ability to use both ligand design and adjustment of reaction conditions to understand and control the aggregation processes is crucial. The combination of these approaches yield the best chance of synthesizing sophisticated, potentially
Synthesis, Characterization, Computational, Antimicrobial Screening, and MTT Assay of Thiazolidinone Derivatives Containing the Indole and Pyridine Moieties

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Abstract—A series of novel 2-{[1-(arenesulfonyl)-1H-indol-3-yl]-4-oxo-1,3-thiazolidin-3-yl]pyridine-4-carboxamide derivatives was designed and calculated for their computational properties like physicochemical parameters and bioactivity score. Bioactive compounds 1–8, were then synthesized, characterized by various spectroscopic techniques and assessed for antibacterial activity against S. aureus, S. epidermidis, P. mirabilis, and E. coli. The percent viability of the cells was carried out by MTT assay using HepG2 cells. The results for antibacterial activity were observed in strong recommendation with the computation results. The synthesized compounds were found to portray better activity and lower cytotoxicity when compared to the standard drug Ciprofloxacin.

Keywords: 2-{[1-(arenesulfonyl)-1H-indol-3-yl]-4-oxo-1,3-thiazolidin-3-yl]pyridine-4-carboxamide, computational properties, antibacterial and MTT assay

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INTRODUCTION

A high concern of health care professionals is presently focused on the rising rates of multidrug-resistant infections, which is explained by the developing resistance to available antimicrobial agents [1–3]. This enhances the demand for new antimicrobial agents with a different mode of action and lower toxicity [4, 5]. Recently we have synthesized some novel 1,2,4-triazine derivatives and evaluated them for the antimicrobial potential and cytotoxicity [6]. As known, the heterocyclic nucleus is quite important in medicinal chemistry [7]. Indole derivatives have been investigated to exhibit the potential antimicrobial therapeutic effects [8]. 2-{[1-(Arenesulfonyl)-1H-indol-3-yl]-4-oxo-1,3-thiazolidin-3-yl]pyridine-4-carboxamide belongs to the class of pyridine-3-carboxamide derivatives, the studies reported that they are considered to portray the numerous pharmacological functions such as cytoprotective [9], antiviral [10] antitumor [11], and anxiolytic [12] activities. On the other hand thiazolidinone derivatives have been reported to exhibit antibacterial effects [13]. Keeping in mind the individual biological importance of the above moieties, we set ourselves the goal to synthesize compounds including a combination of these structural units, expecting to obtain more potent antibacterial drugs.

RESULTS AND DISCUSSION

Structures of compounds 1–8 were designed by ChemDraw Ultra 8.0 and copied as smiles file. Now these files were employed for the calculation of Bioactivity score and physicochemical properties by the online available software. Compounds 1–8 were then synthesized by the route shown in the Scheme 1. The synthesis was carried out in three steps. The first step involved the reaction of isoniazid with indole-3-carboxaldehyde and few drops of glacial acetic acid in ethanol under reflux to obtain N-[(Z)-1H-indol-3-ylmethylidene]pyrimidine-4-carboxyhydrazide. The later was reacted with thioglycolic acid in the presence of anhydrous zinc chloride to form the thiazolidinone.
Research Article

Exploration of physicochemical and phytochemical potential of Linum usitatissimum Linn (Tukhm-e-Katan)

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Abstract

Background: Unani Medicine possess a large number of drugs used in various diseases as mentioned by eminent Unani Physicians based on their own long term experience. But, a doubt always remains regarding the standardization of Unani drugs. Objective: Therefore, the present study was aimed to standardize and to assure the quality control check of an important Unani drug Tukhm-e-Katan used for various infectious diseases. Material and Methods: The test drugs, Tukhm-e-Katan (Linum usitatissimum L.) were procured from local market of Aligarh. The Physicochemical study includes the parameters recommended by National Unani Pharmacopeia Committee, these parameters are the determination of organoleptic characters, extractive values of the test drug in different solvents, alcohol and water soluble contents, moisture content, ash values, loss on weight on drying, bulk density and pH values, and the preliminary phytochemical screening was carried out with different extract of Linum usitatissimum for the detection of various phytochemicals. Tests for common phytochemicals were carried out by standard methods. Results: Ash values, Total ash, (3.79%) acid insoluble ash, (2.91%) water soluble ash, (0.96%) Successive extractive values in different solvent, petroleum ether (30.56%), diethyl ether (7.93%), chloroform (4.2%), ethyl acetate (2.9%), acetone (1.7%), alcohol (2.6%), aqueous (8.5%), solubility in alcohol (33.06%) and water (12.26%), loss on drying (7.72%), pH at 1% (7.62), & 10% (6.68), bulk density (0.73%) and moisture content (7.0%). Conclusion: Preliminary phytochemical analysis of Linseed (Linum usitatissimum) showed presence of Alkaloid, flavonoids, steroids and terpenoids which may be active compound, responsible for its wide activities.

Keywords: Standardization, Flax, Katan, Linum usitatissimum. Linseed, Tukhm-e-Katan

Introduction

The herbal or natural drugs show significant variation in the chemical composition. This can be so drastic as to cause therapy failure or toxicity, so it can be appreciated that different samples of the same natural drug would rather commonly produce significantly different responses. So it is necessary to determine some crucial physicochemical characters of each sample before its pharmacological study to ensure that subsequent study would use same natural drugs. Therefore, along with the pharmacological study, the test drug was also subjected to a physicochemical study, the evaluation of their ash value, extractive value, and qualitative analysis is of great significance. Therefore, present study deals with physicochemical and phytochemical investigation of Tukhm-e-Katan consists of dried seeds of Linum usitatissimum Linn. It is versatile and blue flowering rabi crop belonging to linaceae family, commonly known as Flaxseed or Linseed in English (Anonymous, 2007). It is one of the most ancient crops cultivated in Egypt. It is also cultivated in India as an oil seed plant. The plant has shown diverse biological and pharmacological activities. It has been used in Unani Medicine and Traditional Systems of Medicine from time immemorial. Its seed and oil are used in various diseases such as asthma, cough, bronchitis, pleurisy, pneumonia, joint pain, renal colic, renal calculi, rheumatic swelling (Nadkarni,
EVALUATION OF IN VIVO ANTIOXIDANT ACTIVITY OF HYDRO ALCOHOLIC EXTRACT OF LINUM USITATISSIMUM L. (TUKHM-E-KATAN) AGAINST HIGH FAT DIET INDUCED RATS

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ABSTRACT

The aim of the present study was to evaluate the in vivo antioxidant activity of 50% ethanolic extract of Linum usitatissimum against high fat diet induced rats. Animals were treated with plant extract for 30 days, and high fat diet was given to all groups except plain control through out the study, and alpha tocopherol acetate (Vit, E) was used as standard. Pre-treatment with 23 mg/100 gm of body weight of 50% ethanolic extract of Linum usitatissimum significantly improved the superoxide dismutase, catalase, glutathione, and lipid peroxidation levels as compared to control group. The present studies revealed that the in vivo antioxidant activity of Linum usitatissimum was significant, and can be used to protect tissue from oxidative stress. The result showed that the superoxide dismutase, catalase, lipid peroxidase, and glutathione reductase activities significantly declined in group treated with high fat diet than that of normal group. Based on this investigation, it was concluded that the 50% ethanolic extract of Linum usitatissimum has good in vivo antioxidant activity and can be used in protecting tissue from oxidative stress.

Keywords: Linum usitatissimum, alpha tocopherol, superoxide dismutase, antioxidant activity.

INTRODUCTION

The use of plants in the management and treatment of diseases started with the advent of human life. In recent years, considerable research has been done on an array of plants having medicinal values. Therefore, medicinal plants and their therapeutic values are extensively used to cure an array of diseases all over the world. Antioxidants are agents that protect our body against damage by free radicals such as vitamin E, vitamin C, which are responsible and for combating the diseases caused mainly or partly by oxidative stress. The oxidative stress deregulates a series of cellular functions and leads to various pathological conditions like arthritis, asthma, autoimmune diseases, carcinogenesis, cardiovascular diseases, cataract, diabetes, neurodegenerative diseases and ageing. The human body has several mechanisms to counteract oxidative stress mainly by producing antioxidants. Endogenous and exogenous antioxidants act as “free radical scavengers” by preventing and repairing damages caused by reactive oxygen species (ROS) and reactive nitrogen species (RNS), and therefore, can enhance the immune defense and lower the risk of many life threatening diseases.

Herbal or natural drugs show significant variation in the chemical composition. This can be so drastic as to cause therapy failure or toxicity, so it can be appreciated that different samples of the same natural drug would rather commonly produce significantly different responses. So it is necessary to determine some crucial physicochemical characters of each sample before its pharmacological study to ensure that subsequent study would use same natural drugs. Secondly, the antioxidant activity is basically a chemical activity, so the chemical nature of antioxidant agents is of much greater importance in the elucidation of their pharmacology. Therefore, along with the pharmacological study for antioxidant activity, the test drugs were also subjected to a physicochemical study. The unani drug Tukhm-e-Katan comprises of seeds of a plant Linum usitatissimum Linn, a versatile and blue flowering rabi crop belonging to linaceae family, commonly known as flaxseed or linseed. It is one of the most ancient crops cultivated in Egypt. It is also cultivated in India as an oil seed plant. The plant has shown diverse biological and
Malus pumila and Juglen regia plant species mediated zinc oxide nanoparticles: Synthesis, spectral characterization, antioxidant and antibacterial studies

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**Article Info**

**Keywords:**
- Zinc oxide nanoparticles
- Plant species extract
- Environmentally friendly
- Antioxidant
- Antibacterial

**Abstract**

Zinc oxide nanoparticles derived from Malus pumila (apple) and Juglen regia (walnut) plant is an attractive area of research because of their widespread use. The use of plant material to synthesize zinc oxide nanoparticles has been considered as one of the best environmentally friendly approaches. This method appears to be low-cost as compare to other conventional methods of synthesis. The biologically synthesized nanoparticles were characterized by Ultraviolet-visible spectroscopy (UV-visible), Fourier transform infrared spectroscopy (FT-IR), Attenuated total reflectance spectroscopy (ATR), Raman spectroscopy (RDX), Scanning electron microscopy (SEM), Energy dispersive X-ray spectroscopy (EDX), Transmission electron Microscopy (TEM) and Dynamic light scattering (DLS). The antioxidant potential has been evaluated by 2, 2-diphenyl-1-picrylhydrazyl free radical (DPPH) assay using L-ascorbic acid as a standard. The antibacterial activity was measured by agar well diffusion method to measure the efficacy of plant species extract and extract mediated zinc oxide nanoparticles against 5 g positive bacteria namely Staphylococcus aureus (S. aureus), Streptococcus mutans (S. mutans), Streptococcus pyogenes (S. pyogenes), Corynebacterium diphteriae (C. diphteriae) and Corynebacterium xerosis (C. xerosis) and 3 g negative bacteria such as Escherichia coli (E. coli), Klebsiella pneumoniae (K. pneumoniae) and Pseudomonas aeruginosa (P. aeruginosa) bacteria with standard antibiotic for gram positive (Ciprofloxacin) and gram negative bacteria (Gentamicin).

1. Introduction

Nanomaterials in comparison with bulk materials have novel and enhanced properties and the impact of nanomaterials can be felt in almost all the areas of science. Nanomaterials possess unique properties in terms of chemical, physical and mechanical aspects and they can be used for various applications in many fields [1-2]. Recently, researchers are focusing on the discovery of novel nanomaterials, construction of new nanostructures and exploring their applications [3]. There are various methods used for the synthesis of zinc oxide nanoparticles such as combustion, direct precipitation, hydrothermal, solvothermal, sonochemical, vapour phase, wet chemical, microwave assisted and micro emulsion [4]. Currently, increasing interest and development in green chemistry approach for the synthesis of nanoparticles is on upsurge [5]. Environmentally benign method of synthesis of nanomaterials using microorganism, plant part (tissue, fruit) and marine algae is attractive mainly they are used for cosmetic, water remediation and medical field [6]. This method is simple and cost-effective alternative as compare to the other physical and chemical method of preparation. Zinc oxide nanomaterials are important area of research due to their special features and have variety of applications because of its exceptionality in optical and electrical properties such as biomedical, gas sensors, thin film transistors, piezoelectric, Uv-light absorption, catalysis, transparent conductors and antimicrobial applications [7-12]. Malus pumila (apple) is one of the most important fruit crop of temperate region of India particularly found in Jammu and Kashmir, Uttarakhand, Himachal Pradesh and some states from north east like Arunachal Pradesh, Nagaland, Sikkim [13]. It belong to Rosaceae family, leaf extract of this plant contain lot of biomolecules and exhibit good in vitro antioxidant and antibacterial properties [14]. Juglen regia (walnut) is commonly known as Akhroot, a deciduous tree found in temperate areas and grows in Himalayan region up to 900-3300 m and cultivated in United

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Chairman
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Self-assembled transition metal dithiocarbamates of pyridine-3-carboxamide: synthesis, spectral characterization, thermal and biological studies

Abdul Kareem, Shahab A. A. Nami, Mohd Shoeb Khan, Shahnawaz Ahmad Bhat, Azar Ullah Mirza and Nahid Nishat

Herein, a novel bidentate dithiocarbamate ligand (ndtc) derived from pyridine-3-carboxamide, (nicotinamide) by the insertion reaction of carbon disulfide and its subsequent self-assembled first row transition metal complexes having the formula Mn(ndtc)₂ (where M = Co(II), Ni(II), Cu(II), and Zn(II) ions) was synthesized and characterized using various spectroscopic techniques. The facile reaction between the transition metal halide and ndtc in a 1:2 molar ratio yielded the aforesaid complexes in high yields. The formation of a single product was confirmed by thin layer chromatography. CHNS, IR, NMR spectra (¹H and ¹³C), TGA/DTA, XRD, UV-visible spectra, magnetic moment, and conductivity measurements were performed to ascertain the proposed structure of the synthesized complexes. On the basis of the abovementioned studies, the complexes were found to possess an octahedral arrangement, except for the Cu(II) ion, which was found to have a square-planar structure. The dithiocarbamate moiety was found to coordinate in a bidentate symmetrical fashion with the metal ions in all the complexes. The complexes were screened against a variety of human cancer cell lines such as human hepatocellular carcinoma (Hep3B), human breast adenocarcinoma (MCF7), and normal cells (PBMC). The complexes displayed moderate to good cytotoxicity on these cancer cell lines. However, Cu(II)ndtc₂ was found to be most potent on MCF7 with an IC₅₀ value, 3.56 ± 1.1500, while Zn(II)ndtc₂ was the most potent against liver and cervical cancer cell lines, with IC₅₀ values, 2.32 ± 1.5000 and 3.58 ± 1.6100 in micro-molar concentrations, respectively. The antioxidant potential of the ndtc and its metal complexes was determined using DPPH, and Cu(II)ndtc₂ was found to be most efficient. Moreover, molecular docking simulations were also performed for the ndtc and its complexes, which confirmed the findings of the cytotoxicity.

1. Introduction

Organic frameworks containing sulfur atoms act as important precursors for the formation of an array of biologically potent molecules and their successive metal complexes. Dithiocarbamate (dttc) compounds are among the most robust and well-explored organosulfur compounds and have extensively been used as pesticides in agriculture since their discovery in 1950s.¹⁻³ Due to their versatile applications and resemblance to several important biomolecules, like hemoglobin, Vit. B₁₂ etc., the preparation and characterization of dithiocarbamate-based metal complexes remains a key area of research.⁴⁻⁵ The dtc ligands have an amazing complexing ability because of the presence of an appropriate bite angle of the CSS moiety, which can coordinate with a large number of metal ions in normal as well as in abnormal oxidation states, like Ni(II) and Cu(II).⁶⁻⁷ Dtc complexes also exhibit a rare spin-crossover phenomenon. The coordinating and complexing nature of dtc ligands are well documented and recognized.⁸⁻⁹ Dtc metal complexes have numerous applications in many areas of science, such as material science and biomedical science.¹⁰⁻¹¹ For example, the dimethylthiocarbamato anion is used as a chelating agent for the separation of transition metal ions,¹² while its group (IV) element complexes were found to possess potent antitumour properties.¹³ A number of dialkyldithiocarbamates have exhibited promising biological activities, like cytotoxicity and anti-tumor activities,¹⁴⁻¹⁵ and anti-alkylation,¹⁶ as well as anti-HIV activity.¹⁷ A diethylthiocarbamate has also been used to reduce the initiation of AIDS in human immunodeficiency
اثنتیک ڈائیرکٹرے کے استعمال کے محسوسات کی ایک تحقیق کے بارے میں

ецерт پریس ⭐⭐⭐⭐⭐

عالمی میں اسلام پر یہ ایک خاص اہمیت کا سلسلہ ہے کہ مسلمانوں کے لیے اسلام کا استعمال اور اس کے اثرات کا مطالعہ کیا جانے

کیونکہ اسلام کا مطالعہ ایک اہم موضوع ہے اور اس کا استعمال اور پھیلاؤ کی تفصیلات اور اثرات کا مطالعہ ایک اہم ذرنہ ہے۔ اسلام کا استعمال اور پھیلاؤ کے اثرات کا مطالعہ ایک اہم موضوع ہے جس میں مختلف اہم اثرات شامل ہیں۔ اسلام کا استعمال اور پھیلاؤ کے اثرات کا مطالعہ ایک اہم ذرنہ ہے۔ اسلام کا استعمال اور پھیلاؤ کے اثرات کا مطالعہ ایک اہم موضوع ہے جس میں مختلف اہم اثرات شامل ہیں۔

کوئی کسی کے خلاف اسلام کے سرگرمیوں کا استعمال اور پھیلاؤ کے اثرات کا مطالعہ ایک اہم ذرنہ ہے۔ اسلام کا استعمال اور پھیلاؤ کے اثرات کا مطالعہ ایک اہم موضوع ہے جس میں مختلف اہم اثرات شامل ہیں۔

کوئی کسی کے خلاف اسلام کے سرگرمیوں کا استعمال اور پھیلاؤ کے اثرات کا مطالعہ ایک اہم ذرنہ ہے۔ اسلام کا استعمال اور پھیلاؤ کے اثرات کا مطالعہ ایک اہم موضوع ہے جس میں مختلف اہم اثرات شامل ہیں۔

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CASE STUDIES ON EFFICACY OF HIJAMAH BILA SHART (CUPPING) IN FALIJ-E-NISFI (HEMIPLEGIA)

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ABSTRACT

Falij-e-Nisfi (Hemiplegia) is a leading cause of disability and morbidity in present era. In Unani system of medicine Istarkha (paralysis) is same as that of word Falij or Falij-e-Nisfi (Hemiplegia). Falij is described as a disease causing loss of movement and sensation in longitudinal half of the body due to the penetration of Rooh e Hassas and Muharrrik (active Pneuma) into the organs may either be arrested or the Rooh (Pneuma) may penetrate but the organs may not respond due to Sue Mizaj (disturbance in temperament). Falij is an Arabic word meaning “to half.” Falij indicates Istirkha of longitudinal half of the body either starting from the neck sparing head and face or the entire longitudinal half of the body from head to foot (1). Since Falij nisfi affects one half of the body and leaves the other half unaffected (healthy), it has been named so because of the virtue of dividing the body into two halves; one healthy and the other diseased.

Hemiplegia clinically causes muscle weakness. Each muscle has a specific nervous and it can be assessed clinically as to which nerve is affected by proper examination of the patient. Hijamah (Cupping) is one of the regiminal method with many therapeutic benefits. Massage cupping has been proven beneficial in facial paralysis. Two cases of hemiplegia admitted in IPD of A&U Tibbia College, Karol Bagh was assessed for muscular weakness were included in study. Hijamah was done on the site of muscular weakness found on examination and effect was assessed. Effect of Hijamah in improvement of muscle power was found and it was statistically significant details of which will be given in full length paper.

No. of Pages: 6

Keywords: Falij, Hijamah, effect.

INTRODUCTION

Falij-e-Nisfi (Hemiplegia) is a leading cause of disability and morbidity in present era. Hemiplegia is paralysis of the arm, leg, and trunk on the same side of the body, wherein one half of the body has less marked weakness. In Unani system of medicine Istarkha (paralysis) is same as that of word Falij or Falij-e-Nisfi (Hemiplegia). Falij is described as a disease causing loss of movement and sensation in longitudinal half of the body because the penetration of Rooh e Hassas and Muharrrik (active Pneuma) into the organs may either be arrested or the Rooh (Pneuma) may penetrate but the organs may not respond due to Sue Mizaj (disturbance in temperament). It is a well-known disease since Green-Arabic period and was described by Hippocrates, the
Importance of Asbab-e-Sitta Zarooriya in Maintaining Health with Special Reference to Harkat-e-Badni

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Sedentary lifestyle is associated with increased burden of lifestyle disorders causing morbidity, mortality and great economic loss to the nation as well as to the world. It is evident that sedentary behavior that involves low energy expenditure, such as television viewing and desk bound work etc is adversely affects the health outcomes. As per the Unani medical philosophy, Asbab-e-Sitta Zarooriya (Six Essentials of life) helps to live a healthy life, and Harkat-e-Badni (Physical activity) is among one of them that is considered as an essential means to live healthy. Low levels Harkat-e-Badni (Physical activity) has been shown to be consistently associated with lifestyle disorders. Public health recommendations on participation in regular moderate to vigorous intensity physical activity sometimes referred to health enhancing exercise have been widely promulgated with the aim of reducing type 2 diabetes risks, cardiovascular disorders, some cancers and premature mortalities and morbidities by these diseases. US federal guidelines recommend at least 30 minutes of moderate to intensive physical activity for at least five days a week reduces risk of aforementioned disorders.

Key words: Asbab e Sitta Zarooriya, Diabetes, Cardiovascular disease, Life style disorders

Introduction

According to Unani medical philosophy, necessary modification in Asbab-e-Sitta Zarooriya (Six Essentials of life) helps an individual to live a healthy life and Harkat-e-Badni (Physical activity) is one of the six essentials considered to live healthy. Physical activity has been shown to be consistently associated with reduced risk of type 2 diabetes, cardiovascular disease and premature mortality. Public health recommendations on participation in regular moderate to vigorous intensity physical activity sometimes referred to as 'health enhancing exercise' have been widely promoted, with the aim of reducing type 2 diabetes risk, cardiovascular disease and some cancers. US Federal Guidelines recommends at least 30 min of moderate intensity physical activity on at least five days of the week to reduce risk of aforementioned disorders. It is emphasized that this is in addition to the light intensity of daily activities referred to as 'baseline activity', which includes standing, walking slowly and lifting light objects. Changes in lifestyle due to changes in personal transportation, communication, workplace and domestic entertainment technologies on one hand is time saving and convenient but on the other hand reduces the physical activity. Time spent in sedentary behaviors typically in the contexts of television viewing, computer use, workplace sitting, and time spent in automobiles are a new focus for research in the physical activity and health field. Sedentary behaviors are defined by both their posture, sitting or reclining and their low energy expenditure typically in the energy expenditure range of 1.0–1.5 METs (multiples of the basal metabolic rate). In contrast, moderate to vigorous physical activities, such as brisk walking or running involve an energy expenditure of at least 3 METs. In this perspective, light intensity
Leeching (Irsai-e-ALAq) and its Application in Varicose Vein

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The concept of Unani medicine is based on balancing body humours, the imbalance of which causes diseases. According to Unani doctrine, Leech therapy works on the principles of Tanqiyae Mawad (Evacuation of Morbid Humours) and Imalae Mawad (Diversion of Morbid Humours). The efficacy of leech therapy is attributed through the analgesic and resolvent activities of leeches. The use of Hirudomedicinalis in clinical practice has increased in recent years. The primary indication in plastic surgery has traditionally been venous congestion. However, other reported clinical applications were in varicose veins, thrombophlebitis, and osteoarthritis. In this review, we summarize recent data elucidating the role that medicinal leeches play in the field of varicose vein.

**Key words:** Irsal-e-alaq, humours, hirudomedicinalis, varicose vein (dawali), tanqiyae mawad.

**Introduction**

Unani System of Medicine is based on the 'Theory of Humours' given by Hippocrates. Every person is supposed to have a unique humoral constitution, which represents his healthy state with a specific *Mizaj* (temperament); the *Mizaj* of a person is expressed as *Damwi* (sanguine), *Balghami* (phlegmatic), *Safrawi* (Choleric) and *Saudawi* (melancholic). These four humours exist in normal quality and quantity, so the health of individual is maintained. The imbalance in quality and quantity of these humours causes diseases. The treatment methodology of diseases is based on four therapeutic modalities which are *Regimenal therapy*, *Dieto-therapy*, *Pharmacotherapy* and *Surgery*. \(^8\) \(^9\) \(^13\) *Ibne Sina* has mentioned 36 regimes in his famous book, “the Canon of Medicine”. Leech therapy is one of the important modes of Regimenal therapy. Leech therapy has been practised in Egypt as early as 1500BC to treat various ailments for instance nosebleed and gout. Till date leeching is an important treatment modality of Ilaj-bil-tadbeer in which medicinal leeches are applied usually on the affected body parts in order to get rid of the morbid humours. Rufus (I\(^{st}\) century) has recommended application of leeches in *Qurooh-e-Kohana Mota-affina* (chronic infected ulcers) and Khanazeer -e Mutaqarraha (ulcerative cervical lymphadenopathy). Razi (850-923A.D.) has recommended the use of leeches in *Quba* (fungal dermatosis), *Sa'aafa* (Alopecia), *Qurooh-e-Balkhiya* (Chronic ulcers). Ali Ibn Abbas Majoosi (930-994A.D.) advised the application of leeches in *sciatica at the joint*. Abul Qasim Zahrawi (936-1036A.D.) has suggested that leeching should be done at such sites where cupping cannot be performed like on lips and gums.

**Leeching** The word 'Leech' is supposed to be derived from an English word for physician, "Laeece". Term Leeching is used as one of the method of *Istifragh* (evacuation) for which leech is placed on the affected area. Leeches have special ability to remove morbid humour from the body and protect the body from various diseases. In India, about 45 species belonging to 22 genera occur. The common Indian species are *Hirudinariquinulous*, *H. viridis*, *H. javanica*, and *H. manillensis*. These species are also common in Burma, Pakistan, Bangladesh and Sri Lanka. The medicinal leech, *Hirudomedicinalis* is an European species which has been introduced into certain ponds and...
A STUDY TO ASSESS IMMUNIZATION STATUS OF CHILDREN ATTENDING A&U TIBBIA COLLEGE & HOSPITAL

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ABSTRACT
A study to Assess Immunization Status of Children Attending A&U Tibbia College & Hospital was conducted on 60 subjects. Objective of the study was to assess the immunization status of children. The sample was collected by convenient sampling technique. Data was compiled and analyzed used percentage and chi square test. It was found that more than half (55%) of the participants were properly immunized. There was no association of immunization status with Socio economic status, religion and gender.

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ROLE OF PHYSICAL ACTIVITY IN INCIDENCE OF TYPE 2 DIABETES MELITUS

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Keywords: Physical activity, Diabetes

ABSTRACT

Type 2 diabetes results from insulin resistance a condition in which cells fail to use insulin properly sometimes combined with an absolute insulin deficiency. Type 2 diabetes has often been described as a “disease of civilization”. Physical activity can lower your risk for type 2 diabetes. Exercise has positive benefits for those who have diabetes. It can lower blood sugar levels, improve insulin sensitivity, and strengthen the heart. Strength training, which increases muscle and reduces fat, may be particularly helpful for people with diabetes.

With this preview a survey based study was conducted in Diabetic OPD of A& U Tibbia College, Karol Bagh New Delhi on 484 subjects which were screened for Diabetes. Physical activity was categorized as Severe, Moderate and Sedentary, it was found that most of the patients who had diabetes had sedentary or mild physical activity lifestyle (84%). Physical activity at workplace as mild, moderate, severe and sedentary was also assessed, it was found that people with sedantary lifestyle have chances of getting diabetes than people with physically active which was found stastically extremly significant P<.0001.
A COMPARATIVE STUDY OF SERUM CHOLESTEROL IN BALGHAMI AND SAFRAWI PERSONALITIES

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ABSTRACT

Background: Temperament is the central concept of Unani System of medicine that needs to be scientifically validated.

Objective: of this study was to find if there is any significant difference in the serum cholesterol of Balghami and Safrawi temperament healthy volunteers.

Method: After categorizing individuals into Balghami and Safrawi temperaments, their serum sample was tested for cholesterol.

Result: It was found that cholesterol was significantly more in volunteers of Balghami temperament.

Conclusion: there is a relation between temperament and serum cholesterol level that validates the Unani concept of fat being cold in nature present more in cold temperament individuals.

Key words: Balghami, Safrawi, temperament.

INTRODUCTION

It is evident in the history of the development of medicine that the study of health and disease as a branch of knowledge started in the 500 BC accredited to Hippocrates (460 BC), who established theories in context of the structure and functioning of the human body as well health and disease. Of these, temperament is one of the crucial concepts, which states that every human being will have one of the four temperaments (Mizaj) viz., Damwi, Balghami, Safrawi and Saudawi. Each temperament is attributed with some characteristics that help to identify and differentiate on personality type from the other. The most accepted criteria for temperament assessment was given by Ibn-e-Sina that consisted of ten parameters. According to Ibn-e-Sina1,2, Muscle and fat (Lahm and Shahm) is one of the ten criteria to determine human temperament and he stated that Fat always denotes coldness and in such cases there is flabbiness and deficiency of liquid and solid fat (Shahm wa Sameen) denotes heat. If fat is in excess, it denotes that the excess is in cold and moisture and that the body is cold and moist [3], considering the Unani concepts that a body which is cold should have more fat than a hot body, this comparative study was undertaken with the objective of validating an important theory of Unani medicine i.e., temperament (Mizaj).
RELATION OF BODY MASS INDEX WITH MIZAJ (TEMPERAMENT)

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ABSTRACT

**Background**: The concept of Mizaj (Temperament) is one of the most significant and the unique feature of unani system of medicine; it is a primary tool for the diagnosis and treatment of disease. The temperament of human body and physique are determined by the dominance of one of the four humors that are as follows: Damvi (Sanguine), Balghami (Phlegmatic), Safravi (Choleric), and Saudavi (Melancholic). Ancient unani physicians have described several parameters for the determination of mizaj which are collectively known as Ajnas-e-Ashra.

**Objective** of this study was to find if there is any significant relationship between body Mass index and Mizaj.

**Method**: In this study 120 normal healthy volunteers were enrolled at Dept. of Kulliyat, Ajmal Khan Tibbia College, AMU, Aligarh. The temperaments (Mizaj) of the subject were determined by using Ajnas-e-Ashra. Weight and height measurements of all the subjects were taken and body mass index (weight [kg]/height $^2$[m]) of all the subjects was calculated.

**Result**: It was found that BMI was significantly more in volunteers of Balghami temperament.

**Conclusion**: The result of this study is fully in accord with the Unani concept, as documented in classical Unani text that the Balghami Mizaj personalities are flaccid and obese.

**Key words**: Balghami, Safravi, temperament, Flaccid.

**Introduction**
The unani medicine or Greco-Arab medicine is based upon the Pythagorean theory of four proximate qualities and Hippocratic theory of four humours. The four qualities are hot, cold, moist and dry. The Unani system is attributed to the great physician Hippocrates of Greece. When the Arabs entered the phase of civilization they undertook the patronization of this system along with other arts and sciences. Much of the Medical Knowledge come to Arabs through the Greeks by translating their ancient texts into Arabic. Many eminent physicians of Greece and Arabs like Asgalibus, Galen, Hippocrates, Rhazes and Avicenna have participated in the compilation and promotion of the same. When the Muslims invaded India in the twelfth century they brought with them their Greco – Arabian system of medicine which is popularly known as...