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Understanding the Physiological basis of Khilt-e-Safra (Yellow bile) in Unani system of medicine; An Overview

***Mumtaz Jahan[1], Arshi Riaz[2], Sheeba Nuzhat[3]**

[1]PG Scholar, [2,3]Assistant Professor, Department of Kulliyat, Faculty of Unani Medicine, AMU, Aligarh, UP, India.

****Corresponding author: mumtazchauhan190@gmail.com***

ABSTRACT

The human body is composed of solid (body organs), liquid (humours), and gases (pneuma) matter. *Akhlat* is the fluid part of the body. It is placed third in the list of *umoor e tabiyyah*; it belongs to the Unani system of medicine concepts that are distinguishing theories of this healing art. It is an important parameter developed by ancient philosophers-physicians to explain all physiological and pathological features of the human body. Every humour serves some specific and general functions. A proper proportion in quality and quantity of Humours keeps the body healthy, and disproportion causes diseases. Hippocrates put forth the concept of *akhlat* and divides body fluids into four types based on Color, *Dam* (Red humour), *Balgham* (White humour), *Safra* (Yellow humour), and *Sauda* (Black humour). *Safra*, yellow bile with *mizaj Har Yabis*, shows the signs and symptoms of *hararat and yubusat*. This paper aims to understanding the physiological basis of *Khilt-e-safra* in the light of modern science to make a track that would give the new direction to understand the concept of *Akhlat* in *Unani Tibb*.

INTRODUCTION

The literal meaning of the word *Akhlat* is an admixture, However in *Tibbi terms*, all *Rutubat-e-Badan* (body fluids) are called *Khilt* or plural- *Akhlat* (Humour) owning to this fact, that body fluids have some specific and general functions. A right proportion in quality and quantity of Humours keeps the body healthy, and disproportion causes diseases. Hippocrates divides body fluids into four types on the basis of Color, *Dam* (Red humour), *Balgham* (White humour), *Safra* (Yellow humour), and *Sauda* (Black humour) [1-4]. According to the physicians, *Safra* is next to *dam* and *balgham* in superiority, and they consider, all the yellow fluids of the body are *Safra'*. it is called *Talkha i*n Persian; hence its taste is *Talkh* (bitter), in Vedic,

it's called *Pith*. It produces in the liver along with other akhlat and is called *Rughwa* (froth) of blood [5-9]. *Safra* (yellow bile) is a complex fluid consisting of several compounds. Some of them are produced as the result of metabolism, and since their functions are not yet known, these are considered *Akhlat fadhliyah* (execratory products). Some are secretory products and serve definite functions in the body [1, 2, 10, 11].

Properties of normal safra

It is *Mu'tadil* in *Kamiyat* (Quantity) and *Kaifiyat* (Quality), lighter than the blood. The Colour of normal bile is either yellow to yellowish green. S.I Ahmad says In Carnivora it is golden yellow and in herbivore, it is yellowish green. Because the bile of Carnivora contains bilirubin, and that of herbivores contains biliverdin. ***Mizaj*** (temperament) is *"Har Yabis"* (hot and dry). As It is produced in hot and dry seasons and climates, Hot and dry age, by hot and dry food; and when there is an excess of safra hot and dry diseases are developed which are cured with cold and moist interventions *(Tadabeer)*, Bitter in taste, Viscid and mucoid in Consistency due to presence of Balgham (mucous) [1, 2, 5].

Wajood (existence) of Safra: In this context philosophers present the two *Dala'il* (proofs)

1. It is stored in the stomach and produces a burning sensation, and when vomited out, it produces a bitter taste in the mouth. Causes burning of the anus when passes in the stool. It falls into the intestine and increases the peristalsis due to its irritant property *(Kaifyat-e-lazah*) and thus causes evacuation.
2. When a person has an excess of safra', his *mizaj* (temperament) is considered hot and dry. i.e., *Safravi Mizaj* and *sue mizaj safra*. He will be hypersensitive, Hyper irritable, Nervous, and highly emotional. Very promptly reacts to all sorts of stimuli. His heart rate, blood pressure, respiration, and general body metabolism all increased. All these signs and symptoms indicated that *safra* has the properties of hyperexcitement and hyperactivity like the sympathetic nervous system [1, 2].

Its functions give us an idea about its irritant and stimulant properties and color consideration.

1. *Safra* warms the intestine and potentiates it for the digestion of food *(Rabban Tabari).* The body needs the *safra*' for three purposes: For digestion of food, to wash the excreta from the intestine, to expel the excreta that is retained in it *(Tabari-al-Kunnash)*

2. *Safra*' helps in the absorption of various substances. eg Fats, Vitamins-A, D, E, K, and carotene.

3. *Istifragh* (excretion): *Safra* helps in the excretion of certain substances through the bile, e.g., Minerals, Toxins, bacteria, etc., Bile pigment, Cholesterol, and lecithin.

4. Laxative action: It washes the sediments and viscid *balgham* from the intestine. It stimulates and irritates the intestine to increase the peristalsis.

5. *Safra*' is its own stimulant. Therefore, it helps in the secretion of *safra*" in the liver cells.

6. It maintains the pH of *Rutubat* (fluids) in the duodenum and activates the action of enzymes.

7. Regurgitation of *safra'* towards the stomach neutralizes the hydrochloric acid, preventing the mucous membrane from corrosion.

8. *Safra* (bile) is vermifuge *(Nafis).*

9. *Safra* is disinfectant and antiseptic against certain types of micro-organisms

10.*Safra*' attenuates (Tarqiq) the blood and causes it to diffuse through narrow passages *(Ibn-Nafis).*

11. Nutrition of organs: It is utilized as food for the nutrition of specific organs like the lung *(Ibn Nafis).* It means *safra* is utilized as food in the nutrition of all those organs in which yellow elastic fibers are found, e.g., Yellow elastic cartilage and yellow elastic tissue [1, 2, 8,12].

***AKHLAT* (BODY FLUIDS) SHOW THE SIGN AND SYMPTOMS OF *HARARAT AND YUBUSAT*.**

Catecholamine(Epinephrine, Nor-epinephrine), Dopamine, Acetylcholine, and other Neurosecretions, Neurotransmitters, e.g., serotonin, histamine, some amino acids, peptides (substance), and prostaglandins. All of these produce general signs and symptoms of stimulation and irritation and work at times of any emergency and emotional strain. Such as joy, grief, anger, heat, and cold, manifested by tachycardia, hypertension, increased respiration, erection of the hairs, increased bodily metabolism, excessive heat production, and dry mouth. All these signs and symptoms are directed toward the *hararat and yubusat* [1].

Epinephrine and norepinephrine are secreted by the medulla of the suprarenal gland. Epinephrine produces the same effects which are produced by the stimulation of sympathetic nerves. Thus, this *khilt* has a close relationship with the sympathetic nervous system. And near about all these signs and symptoms exhibited by epinephrine are attributed to heat and dryness produced by *safra*." Nor-epinephrine is also produced at the nerve endings, synapses, and nerve ganglia. It performs the same functions as exhibited by epinephrine except for specific differences in their effects [13].

Acetylcholine exhibits those effects produced by the stimulation of parasympathetic nerve fibers. Therefore, this *Rutubat* is related to the parasympathetic nervous system. It plays a crucial role in regulating all somatic and visceral motor activities, necessary for the brain's emotion, behavior, and other complex functions. It stimulates or inhibits the neurons under different conditions. Therefore, its various effects are attributed to *hararat and yubusat* (heat and dryness) produced by *Safra* [1].

Serotonin carries messages throughout the body by nerve cells in the brain. It plays a crucial role in mood, sleep, digestion, nausea, wound healing, bone health, blood clotting, and sexual desire. A person having serotonin syndrome usually experiences the following: restlessness, insomnia, confusion, increased BP, tachycardia, dilated pupils, muscle twitching, muscle rigidity, shivering, diarrhea, headache, and heavy sweating. In severe cases, tremors, seizures, irregular heartbeats, and unconsciousness are all symptoms of serotonin syndrome [14]. Therefore, its sign and symptoms somehow relate to the *khilt-e-safra*.

Histamine is a vital substance that has a role in several different bodily processes. Stimulating gastric acid secretion causes vomiting and diarrhoea, plays a role in inflammation, dilates blood vessels, affects muscle contractions in the intestines and lungs, and affects the heart rate. It is also released if the body encounters a threat from an allergen. Histamine causes vessels to swell and dilate, leading to allergy symptoms [15]. Therefore Histamine also shows sign and symptoms of *khilt-e-safra* to some extent.

YELLOW BODY FLUIDS

1. Lutein is a xanthophyll and one of the naturally occurring carotenoids synthesized only by plants. Animals obtain lutein by ingesting plants. In the human retina, lutein is absorbed from blood specifically into the macula lutea, although its precise role in the body is unknown [16].

2. Flavins are a yellow-colored family component and an essential component of living organisms in the form of riboflavin (Vit B_{12}). Flavin plays an important role in the oxidative process *(Ihtiraq)* inside the cells [17].

3. **Carotene:** it is a precursor of Vitamin A.

4. **Blood plasm**a is a clear, amber-colored liquid part of the blood that is devoid of blood cells and contains proteins and other elements of whole blood suspended in it. That helps the body to heal from wounds, distribute nutrients, eliminate waste, and guard against infection [18].

5. Other lipochromes: Lipochrome is a yellowish, fat-soluble pigment that gives some color to the eyes. They are also present in the corpus luteum, liver, fat, and adult adrenals. (Color ranging from light orange to yellow) [19].

These chemical compounds are yellow and placed in the category of safra but do not show any signs and symptoms of *hararat and yubusat*, i.e., *mizaj of khilt-e-safra.*

CONCLUSION

So, it can be concluded that the division of the *Akhlat* based on color given by Hippocrates is acceptable to some extent. However, it is a weak prediction *(Qiyas)*, and the Biological function of chemical compounds (Fluids) cannot be neglected. E.g., most hormones and secretions of the body are placed in the category of *Balgham* based on the range of white color. However, secretions like Catecholamines, Thyroxine, Acetylcholine, Histamine, Serotonin Prostaglandin, etc., show the stimulant and irritant properties attributed to the *Hararat and Yubusat* that is *mizaj safra* and could be placed in the category of *khilt-e-Safra* (yellow humour) due to their physiological properties.

REFERENCES

1. Ahmed SI. (2009) Introduction to Al Umur Al-Tabi‘yah.1st ed reprint. New Delhi: Central Council for Research in Unani Medicine;. P 75, 84-88, 115-127.
2. Ahmad S.I. (1983), Kulliyat-e-Asri, Vol. 1, Nuzhat Ishtiyaq, lecturer, A&U Tibbiya college, Karol bagh, New Dehli, P 84,151,152,219,222
3. Baghdadi IH.(2004) Kitab-al-Mukhtarat Fit Tibb. Vol.1. New Delhi: CCRUM;.
4. Galen. Hippocrates On the Nature of Man (translated by W. J. Lewis and J. A. Beach) [Internet]. Medicina Antiqua: [cited on 2017 Jun 18]. Available from: https://www.stmarys ca.edu/sites/default/files/attachments/files/ On_Hippocrates.pdf.
5. Hamdani K. (1996) Daqaiq-e-Kulliyat, first edition, Aijaz publication house, Darya ganj, New Dehli. P 147-149
6. Jurjani I. (2010) Zakhira khwarizam Shahi. New Delhi: Idara Kitab-us-Shifa;
7. Majoosi.(2010) Kamil-us-Sana’a (Urdu transl. Hkm. G.H. Kantoori). New Delhi: Idara Kitab-us-Shifa;.P 61, 62.

8. Nafis I. (1954) Kulliyat-e-Nafisi (Urdu Translation by Kabiruddin HM). New Delhi: Idara Kitab-us-Shifa;. P 68-72.
9. Sina.I, (2010) Al Qanoon (Urdu transl. Hkm. G.H. Kantoori). New Delhi: Idara Kitab-us-Shifa;. P 28, 30, 31
10. Ahmad W (2014), Khan TN, Zulkifle M. The Explanation and Elucidation of the concept of humours. JRUM.; 3(1).
11. Alam, Md Anzar, Quamri, Mohd. Aleemuddin and Sofi, Ghulamuddin. (2021) "Understanding hormones in terms of humours (*Akhlat*) in Unani system of medicine" Journal of Complementary and Integrative Medicine, vol. 18, no. 3, pp. 459-467. https://doi.org/10.1515/jcim-2020-0003
12. Sina I. () Al Qanun Fil-Tib Book 1 (English translation of critical Arabic Texts). New Delhi: Dept. of Islamic Studies Jamia.New Dehli. P 18-22
13. https://www.medicalnewstoday.com/articles/catecholamines#functionhttps://en.wikipedia.org/wiki/Acetylcholine.
14. https://www.mayoclinic.org/diseases-conditions/serotonin-syndrome/symptoms-causes/syc-20354758#:~:text=Serotonin%20syndrome%20is%20a%20serious,cells%20and%20brain%20to%20function.
15. Antihistamines: Definition, Types & Side Effects - Cleveland Clinic. https://my.clevelandclinic.org/health/drugs/21223-antihistamines.
16. https://en.wikipedia.org/wiki/Lutein.https://www.google.com/search?q=lutein&oq=&aqs=chrome.0.69i59i450l8.114486747j0j15&sourceid=chrome&ie=UTF-8.
17. https://pubmed.ncbi.nlm.nih.gov/24764085/#:~:text=Flavins%20are%20a%20family%20of,of%20all%20biologically%20important%20flavins.
18. https://my.clevelandclinic.org/health/body/22865-plasma#function
19. https://en.wikipedia.org/wiki/Lipochrome#:~:text=A%20lipochrome%20(from%20Greek%20%CE%BB%CE%AF%CF%80%CE%BF%CF%82,the%20decomposition%20of%20cell%20 membranes.