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## Review Article

### FORMATION AND PROPERTIES OF RASŪB MAḤMŪD IN URINE: A REVIEW

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#### ABSTRACT

Since ancient time urine is used as a tool for diagnosis of diseases. Urinalysis is undoubtedly one of the most common and important test done in many diseases even today. Unani physicians also used to evaluate different features of urine like colour, consistency, volume, transparency, odour, froth and sediments for diagnosis as well as prognosis of diseases. Physicians used to advise the patients to collect their urine in a vessel for examination. The collected urine was not examined immediately instead it was kept for a while so that sediments get settled, if present any. These urine sediments may be found not only in disease but occasionally in state of health too. Sediments are classified as Maḥmūd (normal) and Ghayr-Maḥmūd (abnormal) depending upon their colour, position and shape etc. It is a fact that Rasūb Maḥmūd indicates the optimum concoction. Present work is an attempt to explain how Rasūb Maḥmūd are formed and excreted in the urine. Relevant literature was collected from various classical books of Unani medicine.

**Keywords:** Rasūb; sediments; concoction; urine; Unani medicine.

#### INTRODUCTION

Urine examination is believed to pre-date Hippocrates. Physicians from Sumerian and Babylonian civilization (4000 BC) recorded their assessment of urine on clay tablets.<sup>1</sup> Similarly, Unani physicians used to examine urine for assessment of functionality of internal organs with special reference to liver, blood vessels, kidneys and bladder. For examination of urine, physicians advised to collect it in a clean glass vessel and examined it after a while so that Rasūb (sediments) gets settled if present any.<sup>2,3</sup>

#### FOUR DIGESTIONS AND FORMATION OF URINE

According to philosophy of Unani System of Medicine, ingested food undergoes stage-wise extensive processing in the body until it becomes the part of body organs. This processing is divided into four stages and is known as Huḍhum-e-arba'a (four digestions). First stage of digestion takes place in alimentary canal followed by digestion in liver, vessels and organs. These are known as gastric, hepatic, vascular and cellular digestion respectively.<sup>2,5</sup> In every stage of digestion, production of some wastes is inevitable.<sup>6</sup> Because there is always some part of food that is not capable of providing nutrition to the body i.e. no absolute food exists.<sup>7</sup> In gastric digestion, after processing of food, kaylūs (chyme) is formed which resembles with thick barely water. Waste that generates in this digestion is known as faeces.<sup>2,5</sup> The kaylūs formed in gastric digestion reaches to the liver via minute mesenteric vasculature for its transformation into akhlāt (humours) after second stage of digestion i.e. hepatic digestion. For its absorption as well as easy flow into minute mesenteric vasculature, kaylūs has excess of water with it.<sup>2,8</sup> Once kaylūs gets transformed into the humours in the liver, it no longer requires this excess water. Therefore, liver disposes this excess water along with humours, towards the kidneys for excretion.

Kidneys separates waste and nutritive material and then separated nutrients are utilised for nutritive purpose and remaining water is excreted as waste in urine.<sup>3,5</sup> Therefore, urine is considered as waste of hepatic digestion. In the third stage of digestion that occurs in vessels, humours are further processed into an approximate principle just ready to incorporate into the organ. In fourth stage of digestion the approximate principle is transformed into organs with the help of nutritive faculty. In this stage food becomes the part of organ in every respect like miżaj (temperament), colour and consistency.<sup>2,5,8</sup> Sweat is waste of third and fourth stages of digestion.<sup>4,5</sup>

#### RASŪB (SEDIMENTS)

Rasūb (sediments) are the viscous constituents of urine which appear distinctly from the urine. In Unani System of Medicine the term Rasūb is applied not only to those constituents of urine which settle at the bottom but also to those constituents that are floating or suspended in the vessel. These are known as Rasūb-e-Rasib, Ghomām and Moallaq respectively.<sup>2,3,8</sup> Position, colour, homogeneity etc. of urine sediments provide valuable information regarding the states of the body i.e. health and disease.<sup>9</sup> Sediment provides information in many ways: by its substance, its quantity, its quality, its structure, its position, its time and the nature of its admixture.<sup>10</sup>

Sediments are generated from the waste of Huḍūm (digestions) as well as of humours.<sup>9</sup> They are also generated from immature humours as well as from organ melting.<sup>3,4,9</sup> Sediments are classified into Maḥmūd (normal) and Ghayr-Maḥmūd (abnormal). Normal sediments denote optimum nuḍj (concoction).<sup>2,6,11</sup>

Nuḍj is a process of ṭabī'at (physis/nature) on the matter in which matters are transformed in a state that is most suitable for excretion. In other words, By this process ṭabī'at enables the

matter to accept the action of excretory faculty.<sup>5</sup> Homogeneity is salient feature of concocted matter as in general it is mainly concern with the consistency of matter. So far as sediments are concerned, colour also signifies the optimum concoction.<sup>9,10</sup>

#### RASŪB MAḤMŪD (NORMAL SEDIMENTS)

Sediments those are white in colour, smooth in texture, round in shape, uniform in size, not dispersed in vessel but present in close proximity to each other and settled at bottom are considered as Rasūb Maḥmūd (normal sediments).<sup>2,4,8</sup>

#### Colour

White colour of sediments indicates optimum concoction. Since most of the a'dā'e-aṣliyya/mufrada i.e. tissues are white in colour so during the process of cellular digestion ṭabī'at transforms colour of humour into white that reaches to the tissue for its nourishment. Sometimes during cellular digestion even after transformation of colour of humour into white it could not become the part of cell. Then it passes with the urine in form of sediments. Similarly, wastes that are formed from the humours become white when concocted well. When Ṭabī'at overcomes disease, it concocts the disease matter as a result colour of disease matter turns into white.<sup>8,9</sup>

#### Homogeneity

It is another important feature of normal sediments that indicates optimum concoction. Whenever optimum concoction occurs; it brings about homogeneity in matter as occurs in pus.<sup>12</sup> Arzani wrote that optimum concoction makes sediments round in shape and uniform in size. Because of these properties, sediments come into close proximity to each other leaving no any space for air to enter, which disperses the sediments otherwise.<sup>9</sup>

#### Smooth textured/surfaced

Optimum concoction results in smooth texture of sediments that is also a feature of normal sediments.<sup>11</sup> As roughness of sediments indicates that some part of matter or humours has not been acted upon by ṭabī'at or has not been passed through the process of concoction.<sup>8,9</sup>

#### Settled at the bottom

Normal sediments are always found to be collected or settled at the bottom of the vessel because of two reasons; one is being homogenous and other is being almost similar to essence of the tissue i.e. Arḍi (earthy) in nature. It is fact that earthy constituents are heavy so these types of sediments have a tendency to get settled at the bottom. And, they do not disperse throughout the vessel unless intervened by some other causes like air.<sup>8,9</sup>

Sediments having different characteristics from Rasūb Maḥmūd are known as Rasūb Ghayr-Maḥmūd e.g. sediments having colour other than white or pink, non-homogenous, floating, suspended or dispersed in the vessel are considered as Rasūb Ghayr-Maḥmūd. These sediments indicate weak digestion, incomplete concoction of disease matter and melting of organs.<sup>2,6,9</sup> Usually, sediments are not found in healthy individuals because their digestion and concoction is optimum. Also, their blood

vessels do not contain immature humours which need removal. However, occasional presence of sediment in urine of healthy individual is considered normal. It is because passage of normal sediments in urine of healthy individuals indicates excess intake of food that is beyond their digestive capacity.<sup>9,10</sup> In lean and thin individuals and individuals who do regular exercise or have some strenuous occupation, sediment is scanty. Contrary to them, it is plentiful in leisure-loving individuals. Therefore, patients of lean and thin stature do not excrete much sediments as compare to fat patients.<sup>2</sup> If a patient is suffering from Amrād-i-māddi (diseases associated with matter) physicians can assess the outcome of his/her disease by observing the presence or absence of normal sediments. It is a fact that when ṭabī'at dominates over the disease, signs of concoction of disease matter are found in urine in form of normal sediments. So, the sediments are helpful in assessing the stages of disease too.<sup>2,4,6</sup>

#### CONCLUSION

In conventional medicine urine examination is done to diagnose selective conditions but in Unani System of Medicine urinalysis is considered as a primary diagnostic tool. In urinalysis, especially sediments give an insight to state of human body. On the basis of properties of sediments i.e. normal or abnormal, physicians can assess not only the states of body but also stage of diseases too.

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