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A comparative literature review of Blood tissue (*Rakta / Dam*) as mentioned in *Ayurveda* and *Unani* systems of medicines.**Ayman Kazi^{*1}, Vijay P. Patait², Pankaj Tathed³, Samreen Qureshi⁴,**

1. P.G. Scholar, Dept. of *Panchakarma*, APM's *Ayurved Mahavidyalaya*, Sion, Mumbai.
2. Associate Professor and HOD, Dept. of *Kriya Sharir*, APM's *Ayurved Mahavidyalaya*, Sion, Mumbai.
3. Assistant professor, Dept. of *Panchakarma*, APM's *Ayurved Mahavidyalaya*, Sion.
4. B.U.M.S., Private Practitioner, Mumbai.

***Corresponding author:** aymankazi777@gmail.com**Abstract :**

This comparative literature review explores the concept of blood—*Rakta* in *Ayurveda* and *Dam* in *Unani* medicine—highlighting their **origins, characteristics, and physiological functions** within each traditional system. Both *Ayurveda* and *Unani* recognize blood as a vital life-sustaining entity, central to nourishment, thermoregulation, complexion, and vitality. In *Unani* medicine, blood is one of the four humours, formed primarily in the liver through the transformation of ingested food into chyle, then into humours, with blood being predominant. In *Ayurveda*, *Rakta Dhatu* arises from the transformation of *Rasa Dhatu* under the influence of *Ranjaka Pitta* in the liver and spleen, following the sequential nourishment of *Dhatus* as explained by classical analogies such as *Ksheera-Dadhi Nyaya*. Both systems emphasize the qualitative purity of blood for optimal health, though descriptions differ—

Unani explains structural components (*akhlāt latīfah* and *akhlāt kathīfah*), while *Ayurveda* focuses on sensory qualities, temperature, and purity attributes. Functional parallels include sustaining life, nourishing tissues, enhancing complexion, and distributing vital energy (*Harārat Gharīzī* in *Unani*, *Prana* in *Ayurveda*). The review shows that, even though the terms, metaphors and diagnostic views are different, the basic ideas are very similar. This suggests there is good potential for combining knowledge and creating dialogue between both systems.

- **Keywords :** *rakta, dam, akhlāt latīfah, akhlāt kathīfah, prana*

- **Introduction :**

1. *Unani* medicine :

It is based on concept of equilibrium and balance of natural body humours (*Safra, sauda, dam, balgham*). Imbalance in quantity and quality of

these humours leads to diseases whereas restoration of this balance maintains health of a person⁽¹⁾.

The 4 main treatment modalities in unani medicine include⁽²⁾ –

1. *Ilaj-bil-Ghiza* (Dietotherapy)
2. *Ilaj-bil-dawa* (Pharmacotherapy)
3. *Ilaj-bil-Yad* (Surgery)
4. *Ilaj-bil-Tadbeer* (Regimental Therapy)

2. Ayurvedic medicine :

Ayurveda is an ancient system of medicine originating in India over 3000 years ago based on principles of balance and harmony within the *Shaarir* (body), *Mana* (mind) and environment. *Ayurveda* translates to “science of life.” It emphasizes a holistic approach to health, focusing on prevention of diseases and promotion of well being through individualized regimens based on one’s *prakruti* (body constitution) and balance of three *doshas* (*vata*, *pitta* and *kapha*)⁽³⁾.

• Concept of blood in *Ayurveda* and *Unani* systems of medicines :

1. Formation / origin of blood :

a) Unani medicine⁽⁴⁾:

- According to *Avicenna*, the four humors (*Safra*, *sauda*, *dam*, *balgham*) originate from the transformation of ingested food (*Ghiza*), serving as essential components for bodily growth (*Numuw*), upkeep (*Hifz-e-Sihhat*), repair (*Islah*), and energy (*Taqwiyat*).
- He described blood as circulating through the vessels to nourish the organs (*Aa'za*).

- As food enters the mouth, it’s mechanically broken down by the teeth and mixed with saliva (*Lu'ab*) by the tongue (*Lisan*), initiating digestion (*hazm*) even before it reaches the stomach (*Me'da*).
- The heart (*qalb*) contributes indirectly to digestion through its innate heat (*harārat gharīziyya*), supporting both the distribution and assimilation (*tagairaah*) of food particles.
- After stomach and intestinal processing, food becomes chime (*Kaymus*) and chyle (*Kaylus*). The mesenteric vessels (*ma'sareqa*) and branches of the portal vein (*warid al-bab*) carry this chyle to the liver (*Kabad*), where it undergoes hepatic digestion (*Hazm-e-kabadi*). There, it’s transformed into the four humors—with blood forming the majority.
- *Unani* medicine holds that the liver is the primary organ for metabolic activity.

b) Ayurvedic Medicine⁽⁵⁾ :

- Digestion of food initiates the process, after which the essence of nutrients—known as *Ahara-Rasa*—is absorbed. This leads to the formation of *Rasa-Dhatu* (lymph/plasma), which enters the hepato-splenic circulation. Under the influence of *Ranjaka Pitta* (the *Pitta* sub-type located in the stomach and liver), *Rasa-Dhatu* is transformed into *RaktaDhatu* (red blood cells), acquiring its characteristic red hue.
- This process aligns with *Ayurvedic* tissue-nourishment theories—

DhatuPoshana Nyaya—illustrated through three analogical principles: (1) *KsheeraDadhi Nyaya* (Law of Complete Transformation): Like how milk turns into curd, then butter, and finally ghee, *Rasa-Dhatu* fully transforms into *Rakta-Dhatu*. (2) *KedariKulya Nyaya* (Law of Sequential Transport): Just as irrigation canals deliver water to fields one after another, *Ahara-Rasa* flows through channels nourishing each tissue in turn—from *Rasa* to

Rakta and beyond. (3) *KhaleKapota Nyaya* (Law of Selective Assimilation): Similar to pigeons selectively pecking grains from a field, tissues draw from *Ahara-Rasa* only what they require via their metabolic mechanisms. Collectively, these three theories outline how nutrients are transported, selectively absorbed, and transformed into successive tissues (*Rasa* → *Rakta* → *Mamsa*, and so on).

Aspect	Unani Medicine	Ayurvedic Medicine
Origin of Blood	Blood and the other humors are formed from transformed ingested food, serving for growth, repair, and energy.	Digestion produces <i>Ahara Rasa</i> , which becomes <i>Rasa Dhatu</i> , later transformed into <i>Rakta Dhatu</i> (blood) by <i>Ranjaka Pitta</i> .
Digestive Process	Food is masticated and pre-digested in the mouth, then further processed by stomach and intestines into chyme and chyle—transported via mesenteric vessels and portal vein to the liver for transformation into humors.	<i>Ahara Rasa</i> is formed from digested food through <i>Jatharagni</i> (digestive fire), then undergoes dhatu transformation in the liver and spleen via <i>Ranjaka Pitta</i> .
Primary Organ for Blood Formation	The liver is central in converting chyle into humors; it is seen as the key metabolic organ.	The liver and spleen are primary sites where <i>Rasa</i> transitions to <i>Rakta Dhatu</i> via the action of <i>Ranjaka Pitta</i> .

Analogies or Principles	No analogous allegories described.	Employs analogies like <i>Ksheera-Dadhi</i> , <i>Kedari-Kulya</i> , and <i>Khale-Kapota</i> to explain tissue transformation and nourishment.
Transformation Mechanism	Humors are derived from hepatic digestion of chyle.	A chain of nutrient refinement—Ahara Rasa → Rasa Dhatu → Rakta Dhatu—mediated by <i>Dhatu Agni</i> and <i>Ranjaka Pitta</i> .

2. Characteristics of blood :

a) Unani medicine⁽⁶⁾:

- Blood is viewed as a heterogeneous fluid (*Ma'dda mukhtolita*) in *Unani* medicine because it contains contributions from all four humours. This mixture is broadly categorized into two parts: 1) *Akhlātlatīfah* (the fine, dynamic components analogous to plasma). 2) *Akhlātkathīfah* (the coarser, structural components akin to cellular elements such as RBCs and WBCs). The *akhlātkathīfah*—characterized by a predominance of cold qualities—assist in nutrient assimilation (*Tighaziya*) by tissues, while *akhlātlatīfah*—with warmer characteristics—serve vital functions and are more active.
- *Unani* traditions also describe how each humour imparts a distinct physical property to blood: **Yellow bile (Safra)** promotes fluidity and diffusibility (*latīf*), **Black bile (Sauda)** adds mass and thickness, and **Phlegm (Balgham)** contributes stickiness—all underscoring **blood's (Dam)** role as a prime source of

nourishment for organs. The ideal *qiwām* (blood viscosity) is one of balance—not too thin, nor too thick. This viscosity is influenced by the quantity of humours and the tension of *al-bukharātduḥānīyah* (carbon dioxide tension). Historical physicians such as *Al-Abbās* asserted that arterial blood is less viscous than venous blood.

- Ancient scholars observed sedimentation during bloodletting, noting four distinct layers in the settled blood: the top, yellowish thin layer (yellow bile/ *Safra*); below it, a whitish layer (phlegm/ *Balgham*); then a red corpuscular layer (blood/ *Dam*); and finally, the bottom dark layer (black bile/ *Sauda*). Coagulation—known as *injimād-al-dam*—was described as blood transforming into a semi-solid clot, which then releases a straw-colored fluid (serum), called *masāl-al-dam*.
- To prevent unwanted clotting within vessels, ancient physicians invoked the concept of *ṭabī'at* (natural properties of vessels). This aligns

with modern knowledge that blood vessel linings produce substances like nitric oxide and prostacyclin, which inhibit platelet activation and prevent intravascular coagulation.

- *Unani* scholars also attempted to quantify the proportion of *dam* (blood) among humours, generally considering it the most abundant, followed—though variably—by phlegm, yellow bile, and black bile. The *mizāj* (temperament) of blood is described as hot and moist, a quality that plays a key role in maintaining body warmth and homeostasis. Blood's warmth and moisture are essential for delivering heat to well-perfused organs, supporting metabolism, and enabling vascular regulation of heat loss.
- Foods with hot and moist temperaments (such as meat, alcohol, and dates) were thought to increase hot diseases like continuous fever; such illnesses were treated with remedies of opposite qualities (cold and dry). Thus, modern parallels—such as heat exchange via blood flow—underscore the enduring astuteness of these traditional observations.

b) Ayurvedic medicine⁽⁷⁾ :

- The standardized volume of *Rakta Dhatu* in the body is traditionally set at eight *Anjali* — the equivalent of the fluid capacity of two joined palms.
- According to *Vagbhata* (from *Ashtanga Hridaya*), pure blood

(*Shuddha Rakta*) possesses a unique blend of qualities:

- **Taste & Texture:** subtly sweet (*madhura*) and slightly salty (*lavana*), with a balanced and mild temperature (*samashitoṣṇa*), and a smooth, fluid consistency (*asamhaṭa/drava*).
- **Color:** resembling red lotus (*padma*), the radiant red of *Indragopa*, gold (*hema*), or the blood of a sheep (*avi*) or hare (*śaśa*)
- **Behavior:** it retains its purity even after wash—it doesn't stain cloth
- **Temperament:** it shows characteristics similar to *Pitta* as well as a gentle (*saumya*) and fiery (*agneya*) nature.
- Moreover, its shades can range from golden-red (like refined gold), to the glow of *Indragopa*, the hue of red lotus, lac, or the *Gunja* fruit (*Abrus precatorius*), depending on one's constitution.
- **Physical Nature & Sensory Qualities :** Classified as *Anuṣṇāṣita Dhatu*, *Rakta* falls between extremes — neither too hot nor too cold. It is sweet, unctuous, and vivid red in color, with a dense/heavy quality and a distinct but familiar aroma. It responds sensitively to substances that influence *Pitta*. Sharangadhara emphasized that *Rakta* supporting life is characterized by being unctuous, heavy (*guru*), mobile (*chala*), and sweet in taste.

Physical Characteristic	Unani Medicine	Ayurvedic Medicine
Structural Composition	Two fold: <i>Akhlāt latīfah</i> (plasma-like) & <i>Akhlāt kathīfah</i> (cellular elements)	Described in qualities: oily, warm, fluid, light, mobile
Viscosity / Fluidity	Balanced viscosity (<i>muṭadil</i>); neither too thin nor too thick; influenced by humours & CO ₂	Inherently fluid and light—swift circulation implied
Color / Appearance	Normal coloration denotes purity; no detailed analogies given Scarlet red (Arterial) Dark Red (Venous)	Rich hues like red lotus, golden-red, <i>Indragopa</i> , etc. reflect purity
Odor / Purity	Pure blood: odor-free; diseased blood may deviate	Impure blood may become foul-smelling (<i>Visra</i>)
Temperature & Sensation	Hot and moist temperament via humoral & elemental balance	Balanced warmth—not too hot or cold (<i>Samashitoṣṇa</i>)
Behavior with Cloth	—	Does not stain cloth after washing—symbol of purity
Taste	Sweet	Sweet (Madhur)

3) Functions of blood :

a) Unani Medicine⁽⁸⁾ :

- Ancient *Unani* physicians described numerous functions of blood that closely align with modern physiological understanding. According to notable *Unani* thinkers—such as *Naṣ*, *Masīhī*, *Kabīruddīn*, *Baghdādī*, and *Rushd*—blood is essential for nourishing the body and promoting organ development.

- Likewise, contemporary Western medicine outlines how nutrients (like glucose, amino acids, and lipids), absorbed from the digestive tract, are transported by the bloodstream to tissues to support growth.
- *Unani* scholars also describe blood as a source of *harārat gharīzī* (innate heat), distributed throughout the body via arteries. This aligns with modern views on blood flow supplying cells with energy, facilitating repair, and

maintaining cellular integrity—critical processes in healing and tissue maintenance

- One life-preserving role attributed to blood in *Unani* thought is its warming function, which parallels contemporary insights into how blood regulates body temperature. This thermal control arises from blood's high specific heat, thermal conductivity, latent heat of vaporization, and rapid circulation.
- *Unani* medicine also credits blood with enhancing skin appearance—rendering it lustrous, rosy, and beautiful—by nourishing skin cells and clearing away metabolic waste products and free radicals.
- Moreover, in *Unani* theory, blood supplies the *madda* (material basis) for generating homogenous organs (*a'da' mutashabiha*) and acts as the *hamil-e-rūḥ*—a carrier of the spirit or oxygen essence—connecting cells throughout the body's tissues.

b) **Ayurvedic medicine⁽⁹⁾:**

- The foremost role of *Rakta Dhatu* is to sustain life. It is vital for maintaining vitality and well-being.
- It imparts **radiance to the skin** and nourishes *Mamsa Dhatu* (muscular tissue), thereby contributing to physical resilience and vitality.
- The balance and health of other *Dhatus* heavily depend on the

integrity of *Rakta Dhatu*—its deficiency or excess can cause disturbances in cellular tissues.

- Pure and robust *Rakta Dhatu* grants beings **strength, a pleasing complexion, happiness, and longevity.**
- Blood serves as a vessel for *Prana*—the vital life energy—delivering it to every *Dhatu*, tissue, and cell. This *Prana*, originating from inhaled air, sustains essential physiological functions throughout the body. Without *Prana* and the channeling capacity of *Rakta Dhatu*, life cannot exist.
- Maintaining life through physical support—upholding the body and enabling living functionality—is indeed the most significant duty of *Rakta Dhatu*.
- A **clear, vibrant skin tone** and a cheerful appearance are hallmark signs of healthy *Rakta Dhatu*.
- Its circulation ensures adequate nourishment for muscular tissue and helps facilitate **tactile sensation**—providing the sense of touch.
- In his commentary on *Ashtanga Hridaya*, Arundatta attributed the quality known as "*Ojovridhikar*" to *Rakta Dhatu*. This refers to its capacity to enhance *Ojas*—the subtle essence of vitality—and to fortify the body against ailments.

Function Category	Unani Medicine	Ayurvedic Medicine
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Life & Nourishment	Considered the <i>life force</i> , vital for nourishment, growth, and organ development (humoral balance, warmth)	Core life-sustaining tissue (“ <i>Jeevana</i> ”); supports vitality, growth, and well-being
Complexion & Skin Health	Enhances skin appearance—rosiness and beauty—by nourishing tissues and clearing metabolic residues	Enhances complexion, glow, and skin tone (“ <i>Varna Prasadana</i> ”)
Heat & Vital Energy	Carries <i>harārat gharīzī</i> (innate heat), warming and energizing tissues— analogous to modern thermoregulation	Transports vital heat and supports sensory functions like touch (<i>Sparsha Jnāna</i>)
Nourishment of Tissues	Provides “material basis” (<i>madda</i>) for organ formation and repair (via humours and inherent heat)	Nourishes <i>Mamsa Dhatu</i> (muscles) and supports downstream tissues like <i>Meda</i> , <i>Asthi</i> , etc.
Carrier of Vital Essence	Seen as the <i>carrier of spirit</i> (<i>hāmil-e-rūḥ</i>), transporting life-force throughout the body (analogous to oxygen)	Facilitates <i>Prana</i> distribution; vital energy delivered to tissues via <i>Rakta Dhatu</i>
Immune & Life Protection	Purified blood balances humours, protects against disease, and maintains immunity (through blood purification)	Promotes “ <i>Ojas</i> ”—immunity and vitality; strong <i>Rakta</i> contributes to longevity and resilience

• Discussion and conclusion:

The comparative analysis reveals that while Ayurveda and Unani medicine evolved in distinct cultural and philosophical contexts, their views on blood share fundamental similarities in both its formative process and its functional importance. Both systems identify the liver as a key organ in the genesis of blood and emphasize digestion as the initiating step—whether through the hepatic transformation of chyle (Unani) or the Dhatu-poshana process from Ahara Rasa to Rakta Dhatu (Ayurveda). The differences lie primarily in descriptions : Unani employs humoral theory with **structural differentiation**, whereas

Ayurveda uses Dhatu theory supported by **sensory and qualitative attributes**.

Functionally, the two traditions align in attributing life-sustaining, nourishing, and complexion-enhancing roles to blood, along with its involvement in thermoregulation and distribution of vital energy. Unani’s concept of Harārat Gharīzī is similar to Ayurveda’s Prana-vahana role of Rakta Dhatu, both highlighting blood’s energetic and metabolic significance. This conceptual similarities opens paths for integrative medicine, where diagnostic and therapeutic approaches from both systems may complement one another in managing blood-related disorders.

In conclusion, this review highlights that despite linguistic and philosophical differences, Ayurveda and Unani medicine share a profound, holistic understanding of blood that extends beyond its biochemical identity. Recognizing these shared insights can enhance **cross-disciplinary dialogue**, **encourage evidence-based integration**, and **enrich patient care strategies** within traditional and modern healthcare frameworks.

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