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Review Article

### ELEMENTAL ORIGIN OF UNIVERSE AND CONCEPT OF FOUR *ARKAN*: AVICENNA'S PERSPECTIVE

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#### ABSTRACT

To explore about origin of universe and life is always an important topic of discussion and exploration to human and mankind. A lot of theories had been put forward regarding concept of evaluation and origin of life, like Clay theory, Panspermia, Biopoesis, Vitalism, Endosymbiosis, Spontaneous generation and Big Bang theory. All of above said theories are similar in some aspects while differ in other. Greek-Arab Scholars had also put forth the theory of *Arkan Arba* (Four basic constituents) regarding origination, the great Arab scholar and physician "Ibn Sina" known as "Avicenna" in western part of globe, was also one of the pioneer follower of concept of four *Arkan* i.e. *Arkan Arba* and explained origin of universe on the foundation of *Arkan Arba* in his treatise *Al Qanoon Fit Tib* (The canon of Medicine).

This paper aims at discussing elemental origin of Universe and concept of *Arkan Arba* in Avicenna's perspective.

**Keywords:** *Arkan Arba*; origin of universe; Avicenna; Greek Medicine

#### INTRODUCTION

From very beginning human is prying to know about origin of universe and life. A lot of theories regarding had come in consideration about it. Theory of *Arkan Arba* (four basic constituents), is one of them. Ancient philosophers had believed that universe is originated from basic constituents called as *Rukn* in singular and *Arkan* in Plural form. Some of the ancient philosophers believe that life had originated from a single *Rukn* while other believed that more than a number of *Rukn* participate in formation of Universe. One of ancient scholars "The Heraclitus" (540-475BC) had opinion that only one *Rukn* i.e. *Nar* (Fire) is responsible for origin of universe; "Hippasus" also corroborated this concept<sup>1,2</sup>. while "Anaximenes" (611-544BC) said *Hawa* (Air) to be the basic *Rukn*, in same context "Diogenes" supported this conception<sup>1,2</sup>.

"Thales" and "Hippon" advocated *Maa* (Water) is the root cause of everything<sup>1-4</sup>. "Pherecydes" (600-550BC) said that all creature i.e. inanimate objects, minerals, plants and animals made from *Arz* (Earth)<sup>5</sup>.

"Xenophanes" (570-470BC) said two components i.e. Earth and Water are the creatures of everything and said that the

earth had arisen from water; he said, the natural phenomena start with the combination of these primary components<sup>6</sup>.

Later on blending of above four constituents were proposed as the basic components for the origin of universe and life also. The concept called as *Arkan Arba* had been given by Empedocles in 5<sup>th</sup> century BC<sup>3,4,7,8,9</sup>.

In Greek system of medicine, *Arkan Arba* (Four basic components) are considered to be basic constituents for origin and existence of universe as well as life i.e. *Nar* (Fire), *Hawa* (Air), *Maa* (Water) and *Arz* (Earth).

Eminent philosophers of Greek Medicine Pythagoras, Empedocles, Hippocrates, Plato and Aristotle; followed and invoked the theory of four *Arkan* (four basic constituents). They defined that *Arkan* are building blockers as the simpler and undividable matter in the same context, which involves intrinsically are essential for universe<sup>3,10</sup>. In modern era some renowned theories like Clay theory, Panspermia, Biopoesis, Vitalism, Endosymbiosis, Spontaneous generation and Big Bang theory etc tries to describe origin of universe.<sup>11,12,13</sup>

Hippocrates projected the concept of four humours which was based on this concept of four *Arkan*.<sup>14</sup> Jalinooos (Galen) said about *Mawalid-e-Salasa* (Trimatters) i.e. animal and plants and minerals all are made from *Arkan Arba*; *Nar* (fire), *Maa*

(water), *Hawa* (air) and *Arz* (earth) as a primary remote substance<sup>15</sup>. They said four *Arkan* represent to cold, dry, moist, and hot humors in the body. They should be in balance quantitatively and qualitatively yield health; and any disturbance leads to diseases<sup>8</sup>.

#### Concept of Arkan Arba: Avicenna's view

How can four basic components be the building blocks for all the substances in the world? What does each of them contribute?

Renowned philosopher "Abu Ali al-Husain Ibn Abdullah Ibn al-Hasan Ibn Ali Ibn Sina" generally remembered as "Shiekh ur Rais Ibn Sina" by Greek-Arab scholars, also called "Avicenna" in west, was born in 980 AD in Bukhara,<sup>16</sup> tried to answer all these questions. Key to his answers was the "Giver of Forms" a universal active intellect, which infuses the substantial form into the composite when the *Arkan* are properly combined and disposed, so that they have the right complexion for that form. The complexion depends on balance of *Arkan* and their qualities<sup>9,17</sup>.

Ibn Sina quoted that, simplest bodies are the four components viz. "Fire", "Air", "Water", and "Earth". Their forms are only pairs of the opposite qualities hot-cold, moist-dry: for instance, water is cold and moist. The qualities of these *Arkan* are essential for transformation. From these simple components (*Arkan*) all natural beings are generated, and they can be transformed into elaborated forms<sup>18</sup>.

Avicenna said that all four *Arkan* make influence on one another, until - unless homogeneity is achieved, called as elemental mixing. The *Arkan* if once got compound and mix with each other can perform functions, the body made after amalgamation of *Arkan* does hold the power, while taken exclusively, it cannot perform their functions properly<sup>19</sup>.

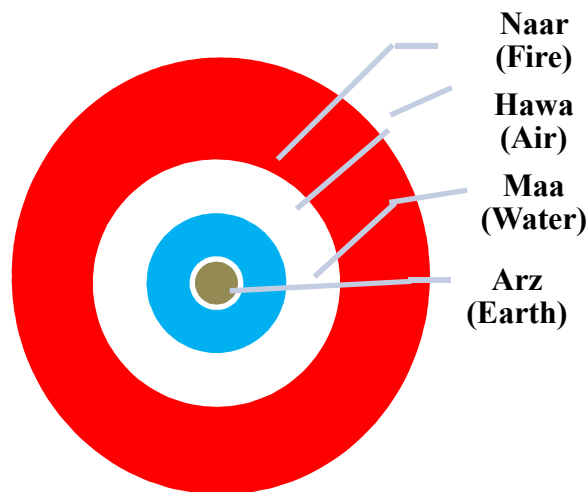
Gruner says in his book a simple body (*Arkan*) is not being determined as a quality, body, matter. Only burning is not quality of Nar (fire), its quality may be seen in plants, now we can say growth is of the quality of fire (innate heat), in different structures likewise what is immobile is due to earth, as well as nourishment from air and whatever depletes shows the essentiality of water<sup>20</sup>.

Ibn Sina suggested that the four *Arkan* are indivisible, and are elementary components or unsubdivided; for all creatures in varied forms<sup>20</sup>.

Mc Ginnis stated in his book "The Physics of The Healing" that Avicenna advises a term "*minima naturalia*", or orders of magnitude beneath which an *Arkan* (basic components) become unable to hold back its kind form and functions. In effect, Avicenna is in view that *Arkan* are bodies that cannot physically be divided further<sup>19</sup>. In the view of status and involvement as a substrate these, it is believed that *Arkan* are simpler and indiscrete, for instance if one see the synthesis of chloroform; methane is in combined form not as Carbon and Hydrogen. So methane is as a simple state and undividable in spite of compound form, if it is divided; will not perform its actual function as substrate.<sup>10</sup> If one has an idea regarding with atmospheric air that comes in the body, then some changes take place in lungs, and oxygen goes to blood circulation. So air as a compound form breaks up in oxygen at specific level but if we take only oxygen during inspiration, don't survive<sup>21</sup>.

These various forms of *Arkan* are responsible for different kinds in origin, functions, activities and their existence also. Two are light, Fire and Air and two are heavy i.e. Earth and Water among these *Arkan*<sup>20,22</sup>. So it can be said that four areas i.e. igneous, aqueous, terrestrial and aerial are confronting *Mawalid-e-Salasa* (Trimatters) i.e. the mineral, plant, and animal origin as a three materialisations<sup>10</sup>.

#### Positions of Arkan Arba (four basic constituents)



Position of *Rukun Arz* (Earth) is at the centre of universe.<sup>7</sup> Naturally it is cold and dry. *Arz* in the body, imparts fixation and holds together into a wadded structure and held the form externally<sup>23,24,7</sup>.

Position of *Rukun Maa* (water) is exterior to the *Arz* (Earth) sphere but to the *Hawa* (Air) interiorly because of its density. Augustine agrees water means that is formless.

It is cold and moist in nature. The purpose of water in the world as it contributes to dispersion of anything and assumes, without permanency it takes any embodiment. So it provides any shape which is easily formed, expands and modified which is due to its moistness, its moisture helps to protect the friability of anything<sup>23,24</sup>.

Water particularly contains vitalizing ability, as we know very well that; many living organisms developed in *Maa* (water), and the germ of all animate being is fluid.

Water may be understood as fundamental moisture (Paracelsus), which is utterly necessary to living beings for their survival; so the plant becomes unable to produce their branches, leaves, flowers and fruits in the absence of water. So human can flourish with this wetness of water, or indigenous moisture which is derived from *Rutubat-e-Unsuria* or *Ustugussia* or *Joharia* it means cellular fluid<sup>25,26,7</sup>.

The *Hawa* (Air) stands above the Water, and beneath the Fire due to its relative weightlessness and naturally it is hot and moist, it subtilizes and furnishes and make the creations easier, frailer, and make the things able to displace<sup>7,23,24</sup>.

*Nar* (Fire) is an elementary substance; its position is higher than three elements<sup>23</sup>. It is Hot and Dry in nature. Everything becomes able to grow, attenuate, rectify, and blends with other things easily due to its sheer weightlessness and penetrative power. These powers enable it to inhibit and maintain the

concordance of absolute coldness of two *Rukun Barid* i.e. water and earth<sup>20</sup>.

Gruner says in his book a simple body (*Arkan*) is not being determined as a quality, body, matter. Only burning is not the element of Nar (fire), element of fire may be seen in plants, now we can say growth is of the quality of fire (innate heat), in different structures likewise what is immobile is due to earth, as well as nourishment from air and whatever depletes shows the essentiality of water<sup>20</sup>.

These basic constituents affect the all creatures in various aspects; so the continuous movement of the *Arkan* is occurring in the living beings cyclically or progressively, which is characterized by physiological changes, and growth occurs<sup>20</sup>. Since a number of physical and chemical properties depend on the energy associated with motion. For example, a chemical bond may break up if a lot of energy becomes condensed in it, for example as energetic vibration<sup>27</sup>.

And if we see at cellular level, the chemical reactions in the cell depend upon extracted energy from nutrition this needs of energy is continuously and constantly because of transformation of energy<sup>28</sup>.

## DISCUSSION

By above discussion about qualities of *Arkan Arba*, we can infer here that the *Arz*, *Ma*, *Hawa* and *Nar* are the driest, coldest, moistest and hottest in all, respectively. Therefore, the qualities of *Arkan* takes part in composition of things, shows different properties. Habitat determines the dominance of any *Rukun* in the formation of animate; for instances, survival in terrestrial areas and aquatic habitats, *Rukun Arz* and *Ma* are responsible respectively, and likewise in birds *Rukun Hawa* is dominant. If the habitat is altered, survival of animate becomes difficult or impossible due to dominant *Rukun* of that particular animate<sup>10</sup>.

As described by another eminent scholar *Ibn Rushd* in his treatise *Kitab-ul-Kulliyat*, that elemental organization of *Arkan* takes place in plant while second order organisation in animals. The herbivorous consumes plants in diet directly or indirectly. After death by degradation and putrefaction they return to their source of origin and transformation occurs.<sup>29</sup>

In biochemical aspect physiological alterations may be accounted in the view of the influencing and chemical constituents;<sup>20</sup> this phenomenon is explained as an *Istehala* or *Kaun wa Fasaad* (those substance gets a new structure and drops another)<sup>30, 19</sup>

In this scenario, Ibn Sina had great thought about *Istehala*, he said nothing is at rest in this world so everything goes to alteration qualitatively or quantitatively like *Arz* (Earth) accepts the cast of plants, and water gets air, indirectly water turns fire; and Fire is getting air etc<sup>31,20</sup>.

If we see ecological system in the world with the context of *Istehala*, to achieve this phenomenon plants bring a critical role in the transformation of energy throughout ecologic organization. Plants absorb mineral and water from the earth through their roots, and come up towards the leaves, and commingled with carbon dioxide (CO<sub>2</sub>) comes from the atmospheric air which helps in the formation of organic compounds, and photosynthesis occurs, here energy is used

and commuted into chemical energy and attached with the organic contents, as oxygen is letting go out and utilized by other organisms and plants for respiration.<sup>32</sup> Hence, a case in point if the substance water is heated, then at some point, when there is a greater preponderance of heat than cold, the water achieves the new phase of air (steam). This example exactly fits Ibn Sina's account. A gradual accidental change or alteration of a quality of the water, namely, its temperature, leads ultimately to a substantial change<sup>33</sup>.

Moreover, Ibn Sina claims that, fire moves upward and earth's motion downward, both seek a place for the whole of themselves. It is absurd, so they seek the extremity of a body that is above or below, for it is absurd that the whole of the body should meet with the limit. Hence it is the ordered position in the interval that is sought. So, once there is the mixture, the simple constituent does harbor the power permeating the whole that occurs after the mixture, whereas, when taken alone, it does not<sup>19</sup>.

According to Unani concept of medicine all four *Arkan* had different temperament as *Rukn Naar* is hot temperament, *Rukn Maa* is cold temperament, while *Rukn Arz* and *Rukn Hawa* are dominate in hardness and mobility respectively. The Unani system describes separately about heat and cold which are in energy and dryness and moister are in mass regarding this subject, Ayub Israeli said in his book "*Aksarai*" stated that heat produces warmness, dispersion, resolvableness, and evaporation etc, coldness aggregates the things, compact and put an end the heat, an objects become gentle, oleaginous, slim and mobile due to moistness, and hardness, stability and resistance on account of dryness and all four *Arkan* with proper quantity provide stability to Universe<sup>7,34</sup>.

## CONCLUSION

With above discussion it can be concluded that Avicenna's concept of *Arkan Arba* is valid and potential concept which can explains origin of life and universe, Unani (Greek Arab) Medicine is based on this concept of *Arkan Arba* and scholars of *Unani* System of Medicine had been treating the disease and serving the humanity since centuries in accordance of this concept only, this again revalidated Avicenna's concept on practical aspect.

## REFERENCE

1. Leonid Z. The Origin of the history of science in Classical Antiquity. Berlin (NY): Walter De Gruyter; 2006.
2. Furley D. The Greek Cosmologists.1 Vol. London: Cambridge University Press; 1987.
3. Russell B. History of western philosophy. London: George Allen & Unwing Ltd; 1946.
4. Said M. Traditional Greco-Arabic and Modern Western Medicine: Conflict or Symbiosis. Karachi: Hamdard Academy; 1975.
5. Ahmad SI. Al Umur Al Tabiyia. New Delhi: CCRUM; 2009.
6. Draper JW. History of the Intellectual Development of Europe. 1Vol. New York, Harper and Brothers Publishers; 2010.

7. Dept. Of Philosophy of Medicine & Science, compiler. Theories and Philosophies of Medicine; 1973.
8. Hajar R. The Greco- Islamic Pulse, Heart Views, 1999; 1 (4): 136-40.
9. Magner LN. A History of Medicine. 2<sup>nd</sup>ed. New York: Taylor & Francis Group; 2005.
10. Zulkifl M, Origin of Life in Unani Perspective. Journal of Research in Unani Medicine, 2013; 2 (2): 32-38.
11. Koshland J, Daniel E. The Seven Pillars of Life, 2002; 295: 2215-16.
12. [http:// www.top theories of origin of life.com/2013/ January](http://www.toptheoriesoforiginoflife.com/2013/January).
13. Wohler F. Annalen Der Physik und Chemie, 1828; 88 (2): 253–256.
14. Chandpuri K. Mojizil Qanoon. New Delhi: Qaumi Council Barai Farogh Urdu Zuban; 1998.
15. Razi AB. Kitab-ul-Murshid. New Delhi: Taraqqi Urdu Bioro; 2000.
16. Osaibah IA. Oun-ul-Anba Fi Tabqat-ul-Atibba 2 Vol. New Delhi: CCRUM; 1990.
17. [http://www.four\\_elements.htm/ 2012/ June](http://www.four_elements.htm/2012/June)
18. Adamson P, Taylor RC. The Cambridge Companion of Arabic Philosophy. New York: Cambridge University Press; 2005.
19. Mc Ginnis J. The Physics of the Healing. USA: Brigham Young University Press; 2009.
20. Gruner OC. The Canon of Medicine of Avicenna. New York: AMS Press; YNM.
21. Sumbulingam K, Sumbulingam P. Essentials of Medical Physiology. 6ed. New Delhi: JayPee Publishers; 2013.
22. Shah MH. The General Principles of Avicenna's Canon of Medicine. New Delhi: Idara Kitab-ul-Shifa; 2007.
23. Nafis I. Kulliyat Nafisi. New Delhi: Idara Kitab-u-Shifa; YNM.
24. The Four Elements, [http://www.unani.com/ four\\_elements.htm/ 2012/ June](http://www.unani.com/four_elements.htm/2012/June).
25. Masihi AS. Kitab-ul-Miah. 1<sup>st</sup>ed. 1 Vol. New Delhi: CCRUM Publication; 2008.
26. Ahmad SI. Kulliyat Asri. 1<sup>st</sup>ed. New Delhi: Ala Press; 1983.
27. Atkins P, De Paula J. Atkins Physical chemistry. 9<sup>th</sup>ed. USA: Oxford University Press; 2010.
28. Campbell MK, Farrell SO. Campbell Farrell Biochemistry. 7<sup>th</sup> ed. USA: Cengage Learning; 2011.
29. Rushd AWI. Kitab-ul-Kulliyat. New Delhi: CCRUM; YNM.
30. Tabri R. Firdosul Hikmat. Deoband: Faisal Publication; 2002.
31. Kalin I. Knowledge in Later Islamic Philosophy. New York: Oxford University Press; 2010.
32. Capra F. The Web of Life. New York: Anchor Books Doubleday; 1996.
33. Mc Ginnis J, Riesman DC, editors. Interpreting Avicenna: Science and Philosophy in Medieval Islam-Proceeding of Seminar. Boston: Brill Leiden Publishers; 2004.
34. Israili MA. Aksarai. 1<sup>st</sup> Vol. Lucknow: Munshi Nawal Kishore Publications; YNM.

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