

# The Unani Concept of *Mizaj* (temperament) and its Correlation with Biodiversity in Present Epoch- A Review

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**Abstract:** Global biodiversities are very important characteristics of nature, which provide different variability among living organisms to all geographical areas including, terrestrial, marine, and other aquatic ecosystems etc. The origin of life as well as biodiversity on the earth was being the issue of contemplation up to now. In BC centuries, Greek philosophers also proposed different ratiocination regarding the same. They provided the knowledge about biodiversity and ecological system and what factors which are essential for their maintenance. Ancient philosophers explicated that the diversity within the species and ecosystems is based on the four basic constituents (fire, air, water and earth) and their temperament (hot, cold, dry and moist). Thus, this paper aims to interpret the significant thoughts of Greek philosophers with the present rational era of ecological knowledge.

**Keywords:** Biodiversity, Temperament, Mizāj, Four basic constituents

## 1. Introduction

On the earth, life has been spread to everywhere. [1] Biodiversity considers a great difference within and between varieties of the living organisms. [2] All living kinds are comrade and making the complex system and are an important means of the biodiversity. In general term, the biodiversity i.e. variation of species of all type of natural habitats are with presence of sure species. Diversity in ecosystem includes diversity in species, habitat and ecosystem. [3]

Avicenna defined *Mizāj* (temperament) as, it is quality developed by action and reaction of opposite qualities of components which are broken down in smallest particles in order to facilitate the proper mixing of all the particles. When these components interact by virtue of their respective powers (qualities), a conditions is achieved which is found in equal proportion in all the components of the compound; this is called as temperament. [4]

In 6<sup>th</sup> century BC, Empedocles proposed that the amalgamation of *Arkān Arba'a* (four basic constituents) i.e. *Nār* (fire), *Hawā'* (air), *Mā'* (water) and *Arḍ* (earth) as the cause of origin of cosmos and life. [5]-[6]-[7]-[8]-[9]-[10] Greek philosophers also proposed that *Arkān Arba'a* are taking part as basic constituents for the origin, functions, activities, formation and survival of different species as well as habitat owing to proper mixing of their depicted qualities i.e. hot, cold, dry and moist. [11]-[12]-[13]

Galen advised that the intermingling of *Arkān* will be in balanced amount in equitable *Mizāj* (temperament) specifically to the concerned. He also said that the quantities of *Arkān* are not always in uniform ratio in the formation of organisms. This disparity is on the basis of species, so in some species *Harārat* (hotness) is dominant, and in some other *Burūdat* (coldness) or, *Rutūbat* (moistness) and or *Yubūsat* (dryness). This disproportion are according to their origin, existence and habitat, it is beneficial to pertaining

body and officiating to the beneficial *Mizāj Aza* (temperament of organs) of specific species. [14]

## 2. Interpretations of Biodiversities in outlook of Greek philosophy of *Mizāj* (temperament)

The immense arrangement of interactions between the various components of biodiversity provides the planet to habitat for all species as well as humans. [15] Razi proposed that all three creatures i.e. animal, plant and mineral are made up of *Arkān Arba'a* i.e. Fire, Air, Water and Earth and at last these three creatures of kingdom decompose into the same. Animals take nutrition from plants and other animals, plants utilize the water and minerals from earth, and if these sources have been ceased then they cannot survive anymore. [16]

Aristotle differentiated the manifestations in modes of survival, in behavior, in action performed. For example, some species live in water and others on land and of those live in water and land they exhibit different functions. Some land animals are furnished with wings, such as birds and bees and others are furnished with feet. [17] Greek philosophers explained the types of *Mizāj* (temperament) which indicate the diversity in structure, function, habitat and living pattern of life.

## 3. Classification of *Mizāj* (Temperament)

- 1) *Mizāj-e-Motadil* (equable temperament) [18]
- 2) *Mizāj-e-Ghayr Motadil* (inequable temperament) [18]

*Mizāj-e-Motadil* (equable temperament) is of two types- (a) *Haqiqee* (ideal), and (b) *Tibbi* (existing)

*Mizāj-e-Motadil Tibbi* (existing) is further divided into eight kinds which are as following-

**i. *Mizāj-e-Motadil Nau'vi Bil-Qayas Elal-Kharij*** (Equable temperament of a species as a whole) [18] It distinguishes a species, as a whole, from the others. For instance, the

temperament of an aquatic life (e.g. fish) is suitable for that particular species and is responsible for its survival, vegetative functions, growth and procreation provided that the habitat is maintained suitably, so, if the habitat of aquatic life is being changed then they cannot survive anymore.

**ii. Mizāj-e-Motadil Nau 'vi Bil-Qayas Elad-Dakhil** (Most equable temperament of a member of the species) <sup>[18]</sup>

All the members of species have their own desirable temperaments which are different from each others. Temperament is so influencing, even, that a fish of salt-free pond cannot survive in the ocean while the medium remained aquatic.

**iii. Mizāj-e-Motadil Sinfi Bil-Qayas Elal-Kharij** (Equable temperament of a race) <sup>[18]</sup>

It is the temperament of a particular race quite different from others. This temperament is assigned to be responsible for the maintenance of the racial characters.

**iv. Mizāj-e-Motadil Sinfi Bil-Qayas Elad-Dakhil** (Most equable temperament of a member of the race) <sup>[18]</sup>

There is a temperamental variation among the members of a particular race

**v. Mizāj-e-Motadil Shakhsi Bil-Qayas Elal-Kharij** (Equable temperament of an individual as a whole) <sup>[18]</sup>

It is the most suitable temperament of an individual for the normal functioning of the person but not for the rest.

**vi. Mizāj-e-Motadil Shakhsi Bil-Qayas Elal-Dakhil** (Equable temperament of an individual during youth) <sup>[18]</sup>

The temperament of an individual during prime of his youth is said to be the equable most for him.

**vii. Mizāj-e-Motadil Uzwi Bil-Qayas Elal-Kharij** (Equable temperament of an organ) <sup>[18]</sup>

The parts of one body, organs are different in their structure and function significantly due to their most suitable temperament.

**viii. Mizāj-e-Motadil Uzwi Bil-Qayas Elal-Dakhil** (Equable temperament of an organ in physiological functional state) <sup>[18]</sup>

It has been provided for the functions of organ perfectly and within physiological limits.

#### 4. Habitat Diversity of Life and Endanger

Regarding the habitats of organisms, the concept of Greek philosophy can be accounted by the contemporary sciences. Habitat of different species of life is also different because of specific *Mizāj* (temperament) which is suitable for their origin and existence.

According to Greek philosophy, habitat determines the dominancy of any *Rukn* (basic constituent) in the formation of animate; for instances, survival in terrestrial and aquatic habitats; *Rukn Arḍ* (earthy element) and *Rukn Mā* (water) are responsible respectively. <sup>[19]</sup> So any alteration in their habitats and responsible factors may alter the life cycle and other biological features. Masudi proposed that, the environmental alterations directly influence to *Haiwanat* (animals) and *Nabatat* (plants) so their shape, forms,

characters and functions might be altered. For instance in Arab countries peacock loses its gorgeous color and tall physique likewise, if, Thelian palm tree planted in India then it grows as a coconut tree. <sup>[20]</sup>

Each habitat has a variety of sub habitats. For example, a wetland may contain habitat types ranging from open water to damp soil, and each habitat has its characteristic species. <sup>[21]</sup>

Word "Terrestrial" is defined as non-aquatic environments. <sup>[22]</sup> Continues changes in land-use are the main short-term (habitat) as well as long-term (climatic change) <sup>[23]</sup> menace for life and the interactions between these two are becoming increasingly important. Owing to cutting off tropical forests to make the way for crops and biofuels, kinds of life extinctions are exhibiting many times more frequent than the previous. Loss of habitats is being continued during the 21st century. Rapid fall of wild species are being seen especially at equatorial Africa and some parts of South and South-East Asia. Climate change provides extension of boreal forests northwards into field to giving way to temperate forests. Successively, temperate forests are expected to die down at the low-latitude and southern edge of their range. Urbanization and farming development are further limiting chance for different species to transmigrate towards other areas in response to change of climate. <sup>[24]</sup> The ozone layer in the upper atmosphere is known to block the harmful UV radiation, owing to change in atmospheric chemistry, UV rays are causing DNA damage because of directly interaction. <sup>[25]-[26]</sup>

According to Avicenna healthy water is that water which is not dominated by any condition or polluted by extraneous elements and it is not putrefied. <sup>[27]</sup> Actually, nine-tenths of the Earth's life is living in the water. So life exists on Earth is due to presence of liquid water on its surface. <sup>[28]</sup>

There are massive changes are seen in water ecosystems continuously owing to multiple pressures, and diversity of life is being lost more speedily than in other ecosystems. Troubles related to water accessibility and quality manifolds globally, as well as increasing water requirements aggravated by a combination of climatic change. Despite of these, the introduction of exotic species, dam construction and pollution are promoting the pressure on freshwater biodiversity. Reservoirs for water supply and recreations to fulfill the needs of industries and irrigation progressively are creating physical blocking barriers to fish movements, threatening or eliminating lots of species in freshwater. <sup>[24]</sup> So the maintenance of water properties is very essential factor for betterment of aquatic life. The other thing which is disturbing the aquatic biodiversity is global warming which is the phenomenon in which the temperatures of earth and atmosphere layers that are close to earth are rising by artificial means due to increase in some gases. <sup>[29]-[30]</sup>

The most important environmental parameter i.e. water temperature that affects the life cycle, behaviors and physiology of aquatic life. <sup>[29]</sup> Because, temperature increase in the atmospheric air does not only increase in the temperature of large water reservoirs but it also makes

hydrological events which results in alteration of physical and chemical characteristics of water.<sup>[29]</sup>

Climate change (a change in air quality and change in the substance of air).<sup>[27]</sup> may also affect the aquatic life; the animals try to gain the appropriate environment for survival, so it can be accounted by Greek philosophy, in which philosophers proposed that the specific *Mizāj* (temperament) of species has been bestowed for survival in specific habitat. So, one can infer here with the help of contemporary ecological system e.g. some water growing animals are limited to very specific habitats, such as the beautiful sea monster that would not be live in the Colorado River or the Delaware Bay because it exists only in a 60-meter-deep, and for thousands of years, in winter season; whales have traveled from the frigid Atlantic to the Caribbean sunshine<sup>[28]</sup> to maintain the appropriate *Mizāj* (temperament). Here it can be described *Mizāj-e-Motadil Nau'vi Bil-Qayas Elad-Dakhil* (Most equable temperament of a member of the species) in which, among species, there is diversity also present owing to their specific temperament.

Legend Greek philosophers illustrated that the habitat of specific organism is depend upon dominant particular *Rukn* (basic constituent). It can be easily corroborated by the present knowledge of ecosystem. For instance, insects inhabit terrestrial ecosystems; flying property is a key inherited trait that enables them to make colony and use of a wide range of habitats. Ectothermic insects are generally sensitive to ecological conditions, thus, it serves as useful indicators for many forms of climatic change.<sup>[31]</sup> Hence, in flying organisms, *Rukn Hawā'* is dominant so they can fly easily.

## 5. Diversity in Structural, Functional and Behavioral Characteristics

Aristotle stated "Animals differ from one another in their manner of life, in their activities, in their habits, and in their parts," particularly with relation to the elements water, air, and earth.<sup>[32]</sup>

Plato conceived differences between members of one and the same species of great importance.<sup>[33]</sup> Aristotle was very much influenced by the importance of the four basic constituents i.e. fire, air, water and earth, and their attributed qualities like hot versus cold, or moist versus dry. Aristotle had a scale of values for different physiological functions, as he seemed to be characteristic for biodiversities. Hotter, moister creatures were supposed to be intellectual, where colder and dryer creatures were less rational.<sup>[32]</sup> He said that in some animals, the consistency of organs is soft, in others firm; some birds have a long beak, others have short; some have more feathers, and others have only a less quantity. Some life has spurs and others not, some of them have crests others have not.<sup>[17]</sup> This is because of dominancy of particular *Rukn* which takes part to form the particular organ.

Masihi stated that, solid organs represent the *Rukn Arḍ* (earth) and soft organs exhibit the presence of *Rukn Mā'* (water).<sup>[34]</sup> *Kaun* (generation) of *Haiwanat* (animals) means the formation from nearest/ closest *Rukn* (constituent) that is

semen and semen is produced from diets and diets are made up of *Arkān Arba'a* i.e. *Nār, Hawā', Mā'* and *Arḍ*.<sup>[35]</sup>

The animal kingdom includes vertebrates and invertebrates. Vertebrates are animals with backbones. Vertebrates include humans, amphibians, reptiles, and fish. Of all the known animal species, vertebrates make up only about 2%. Invertebrates are animals without a backbone that either have a jointed exoskeleton or are soft-structured. The skeleton of vertebrates is buried under skin and muscle; the skeleton of invertebrates is only covered by eyes, antennae, legs, part of the digestive tract, and respiratory tracts.<sup>[28]</sup> So, here vertebrates are having more earthy element as well as invertebrate having more watery element.

Aristotle stated that some flying animals are furnished with feathered wings as the eagle and some are with membranous wings as bee. All feathered wings flying creatures are possessed with blood and membranous wings creatures are bloodless.<sup>[17]</sup>

In the view of Greek philosophy, ancient philosophers proposed that the dominancy of particular *Rukn* (one constituent) represents the peculiar structure of organism.

Anatomical characteristics also show surprising diversities of life. It might be expected that the furcula of birds is universal characteristic, but varies very much in structure with each other, and in some birds, it disappears. Furcula (thin spring like bone) bends during flight. But in energetic flying birds, such as hawk, it is a large, strong and too stiff to bend.<sup>[36]</sup> It is best example of *Mizāj-e-Motadil Shakhshi Bil-Qayas Elal-Kharij* (Equable temperament of an individual as a whole) to perform the functions efficiently.

The bones of birds are hollow (pneumatized). The number of hollow bones differs among species, though tall birds have the most. Respiratory air bags form air pockets within the semi-hollow bones of the skeleton of birds.<sup>[37]</sup> So, these necessities are according to their need.

Aristotle pointed out the exact temperament of different animals on behalf of dominant *Rukn*. He said some animals are good tempered, moving slowly, and less prone to wildness, as the Ox; others are rapid tempered, ferocious and ineducable, like wild boar; some are intelligent and cautious, as the stag and the hare; others are imposing, active and brave, as the lion etc.<sup>[17]</sup> These all special characteristics are reflecting the presence of *Kayfiyāt Arba'a* (hot, cold, dry and moist). For instance, in lion, *Kayfiyāt Har* (hotness) is predominant which is taken under consideration for activeness in Unani system of medicine.

## 6. Conclusion

With above Unani ratiocination, one can infer here that; in BC centuries, philosophers were well known about biodiversities and its factors. They also explained how biodiversities are taken place and what requirements which may take involvement to make the different life in all over world. They corroborated the theory of biodiversity and provided pioneer knowledge for the present era of sciences. Unani philosophers explicated the diversities in life in the context of four basic constituents (*Arkān Arba'a*) and their

*Kayfiyat* (hot, cold, dry and moist). So, researchers may reach to the exact causes of biodiversity with the help of ancient Unani philosophy.

## 7. Conflict of Interest's Disclosure

This work is a review paper, and has not been published previously. There is no conflict of interest to this work.

## 8. Acknowledgement

My profound gratitude goes to librarian (Ehtesham) and co-author (Mohammad Aslam).

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