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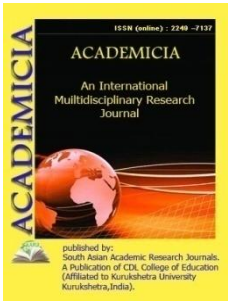

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ISSUES OF GEOGRAPHICAL STUDY OF THE SCIENTIFIC HERITAGE OF IBN SINA

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ABSTRACT

This article examines the application of traditional knowledge about the effects of the environment on the protection of human health from a geographical point of view in some of the works of the great Central Asian scholar Abu Ali ibn Sina on medicine.

KEYWORDS: *Traditional Geographical Knowledge, Seven Climates, Scientific Heritage, Spiritual Heritage, Mijoz, Urjuza, Encyclopedic Scientist.*

INTRODUCTION

If we look at history, we have inherited a huge spiritual heritage from our ancestors, which is still invaluable today. Abu Ali ibn Sina is one of the great Central Asian scholars who made a great contribution to the development of world science. Ibn Sina was born in 980 AD in the village of Afshana near the city of Bukhara. He received his basic education in Bukhara, the capital of the Samanids (tenth century), the center of political and cultural life. After the conquest of Bukhara by the Karakhanids in the early 11th century, Ibn Sino moved to Urgench, the capital of the Khorezm state. Later, when the political situation in Urgench changed and the city was occupied by Mahmud Ghaznavi, he was forced to move to Jurjan, south of the Caspian Sea. He spent the last years of his life in the Iranian cities of Isfahan, Ray and Hamadan.

Ibn Sina, who conducted scientific research in almost all the sciences of his time, was recognized as an encyclopedic scientist in the history of world science. He has authored hundreds of works in philosophy, medicine, geology, mineralogy, physics, chemistry, mathematics, astronomy, geography, literature, music, logic, psychology, and other sciences. That is why he was called "Sheikh Ar-rais" in the East, that is, "the leader of the sages".

Many of his works on philosophy and medicine have been translated into English, Russian, French, German, Turkish, Uzbek, Indian, Arabic and other languages and have been republished over the centuries. According to reports, the publication of Ibn Sina's works has been going on since the advent of the first book printing technique to the present day. In particular, his famous book "*Tibqonunlari* - Laws of Medicine" was first translated into Latin in the XII century [5].

Ibn Sina's scientific legacy has been studied in depth by world scientists in medical, socio-philosophical, political-legal, pedagogical, psychological, mathematical, geological, botanical, physical and chemical terms, has served as an object for many scientific researches, defended doctoral dissertations, articles and bibliographic books were published. An attempt was made to study Ibn Sina's works from the point of view of the field in which the scientific research on the works of Ibn Sina was conducted. We have also tried to approach the invaluable spiritual heritage of our great ancestor from a geographical point of view. In this article, we fail to cover all the works of Ibn Sina, of course. Below we would like to consider the application of traditional geographical knowledge on the impact of the environment in the protection of human health in some works of the great encyclopedic scientist on medicine.

THE MAIN FINDINGS AND RESULTS

Various sources state that Ibn Sina wrote more than 450 works, but only 242 have survived. Although it is his medical legacy that made Ibn Sina known in the West as "Avicenna", especially the "Laws of Medicine," the name "Sheikh Ar-Rais" is primarily a reference to his great philosophy. If we look at the quantitative ratio of Ibn Sina's works, we can see that the scholar's interest and attention was more focused on philosophy and medicine. His works on nature and medicine, in particular, "Kitab ash-shifo", "Encyclopedia", "Laws of Medicine", "Book of Salvation", "Urjuza" focus on theoretical issues of health; the scientist pays special attention to the natural conditions of the place, including water and soil, climate and air, in human health. He emphasizes the need to take into account the patient's temperament, age and the natural geographical conditions in which he lives.

Ibn Sina in his epic "Urjuza about medicine" writes about the importance of climatic factors in maintaining human health, including: "The first thing that needs to be done is the air. There are judgments of the Sun in the air. It is evident in the seasons of the judgments (years) and in the fall of the lights. It (the Sun) also has an effect on climates. The air also varies with respect to each outgoing and setting lamp (the amount of distance in between). When the sun approaches a star, it ignites in the air. When the star moves away from the Sun, the air seems to cool down a bit"[2, p. 31]. Given that in modern climatology solar radiation, air and atmospheric humidity are recognized as material manifestations of climate, it is possible to see how accurately the scientist has defined the factors of climate formation [8]. It has now been scientifically proven that the spread of some diseases is directly related to the state of celestial bodies, especially the Sun. For example, vitamin D, or Sun, strengthens teeth, bones and muscles, and also helps fight colds and flu, according to British medical professor John Rhodes. Deficiency of vitamin D in the human body causes rickets, osteomalacia and other diseases [3, p. 47].

Ibn Sina states in Urjuza that climate has an effect on human health and color (race): "Don't look for evidence based on people's color, if it's influenced by countries", he said. In Zanj (on the east coast of Africa), the heat changed the bodies, and he even wore black on the skin of the bodies. The Slavs acquired whiteness, so much so that their skin became delicate. If you know the

boundaries of the seven climates, you will be familiar with all types of customer. It is the fourth of those climates (in the temperament) and the color is subject to the temperament" [2, p. 26].

It is known that the term "climate" is derived from the Greek word "klima", which the Greeks measured the difference in climate of different latitudes depending on the slope of the sun's rays to the earth's surface - the climate and the number of hours of the day. The concept of the "seven climates" mentioned by Ibn Sina originated in Greek science and was widespread in Muslim Eastern science in the Middle Ages. In his work Geodesy, Beruni states, "They (the Greeks) divided the human habitation into 7 climates with lines that were (parallel) to each other according to a more precise (between night and day) distinction. Those lines run from the farthest of the administrative lands in the East to the end of the West. They attached a summer day with a maximum length of 13 hours from the middle of the first climate and a summer day with a maximum length of 13 and a half hours from the middle of the second climate. Thus, they increased the middle of the climate by more than half an hour and attached it to a summer day with a maximum length of 16 hours.

It turns out that the Greeks divided the Earth in an astronomical style, that is, based on the inclination of the Sun's rays to the Earth, from the equator to the North to the Seven Climates, and their boundaries passed where the longest summer day differed by half an hour. In Eastern geography, the concept of "seven climates" was adopted in Greek science. For example, the Greeks included in the Seven Climates a prosperous part of the earth (the northern phase of the Eastern Hemisphere) as they understood it, and called it "oykumena" (Greek "oykeo" - to prosper). In Eastern geography, this concept is expressed by the Arabic words "mamura" (prosperous places) or "rubimaskun" (a quarter of the Earth inhabited by people). Abu Rayhan al-Biruni, in his work Geodesy, traversed the southern boundary of the seven climates at 12 ° 39 "5" north latitude, and called the distance from it to the equator "the lands beyond the first climate". Continuing the subsequent climates to the north in parallel, he extended the northern boundary of the seventh climate to a latitude of 50 ° 24 "34" [9, p. 457]. As Abu Ali ibn Sina pointed out in Urjuza, it is important for the physician to know the boundaries of these seven climates and to take into account the natural geographical features of the place in treating the patient.

In geography, the position of any point or area on the earth's surface in relation to areas or objects outside that point or area is called a geographic location. Ibn Sina'sUrjuza on Medicine also contains valuable information about climate change depending on the geographical location of the city (country) and the mountains: If the city is located deep in the mountains, judge that its temperament has warmth. If (the city) is located to the south of the mountain, then the hot wind will be judged" [2, p. 31]. By emphasizing the above, Ibn Sina explains to the physician that it is important to determine the geographical location of the place when prescribing medication to the patient.

The idea that the geographical location of a place has an effect on the formation of the climate is also noteworthy in the play, i.e., "If the mountains are to the south of the city, the cold of the north wind will affect it. If the mountains are on the west side, the air of that city will be heavy, and if it is on the east side, it will be clean" [2. 31b.].

Ibn Sina took seriously the issues of geographical location, relief, soil, climate, water and hydrogeological conditions, especially in the choice of housing and housing. He writes in his

"Tadabir al-Manzilav as-Siyasat al-Ahliya" that a person who chooses accommodation should know: the soil of the earth, the height and depth, the open and closed, the water, the substance of the water, the outflow and the openness, or its height and the flow from the lowlands, whether the winds are blowing there, or whether the place is deep, what the winds are - whether they are cold healthy winds, what seas, swamps, mountains, and deposits are nearby. It is also necessary to know the health and disease conditions of the inhabitants of that place, and what diseases they have become accustomed to; ... should also know the condition of the buildings; are they spacious and open? Are the inlets tight and the air inlets tight? Then he should build windows and doors facing east and north" [5, p. 123].

Ibn Sina's medical works often focus on the composition, condition, and effects of water on human health: "The water of wells and underground canals is worse than the water of flowing springs. This is because they do not suffer from a certain degree of stench as a result of being trapped in the soil for a long time [4.63p.].

CONCLUSION

To conclude, the rich and diverse heritage of Abu Ali ibn Sino, who made a great contribution to the traditional spirituality of the Uzbek people, has attracted scholars from around the world for many centuries. The study of the works of great scientists from a geographical point of view, especially in the treatment of diseases in the context of the current coronavirus pandemic, along with the human temperament, taking into account the natural geographical conditions in which he lives; plays an important role in bringing up the younger generation to a healthy adulthood and protecting them from various infectious diseases.

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