

Is DNA an Arabic Term?

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In his manuscript “Treatise on Cardiac Drugs” Ibn Sina stated, “each organ has a special structure/qualitative mixture, (temperament in English translation) which is the result of specific mixtures (chromosomes/genes) in the essence (zygote) , but this special structure/qualitative mixture (genotype) develops because of the number of mixtures and the form (phenotype) of their structure” [1].

Thanks to the Arabic language in which Ibn Sina formulated most of his encyclopedic works, we were able to realize some of the hidden meanings in Ibn Sina’s theories, the most important of which is the meaning of the temperament, as well as the meaning and the origin of the word DNA, which first appeared in the cultural and scientific heritage of the Arabic language and is called “Al-merrataine” in Arabic pronunciation, which means “A long, fine, well coiled strands” and other synonyms [2].

In this review, we emphasize the proper linguistic and scientific meaning of the term “temperament”, which is the “genotype” of an organ or some organs. This new definition that we propose was derived from two sources, the first is a linguistic source originating from the interpretation of the word “temperament” in all its derivatives in Arabic (Dictionary of Lisan Al- Arab, Ibn Manzoor). The second source is the analysis of the scientific context of Ibn Sina and comparing it to the linguistic analogy term.

Temperament in Arabic is called (mizaj) or (mazaj), which literally means a state of mind or body. However, in tibb, it is used to describe the quality or qualities of the elemental mixture that constitutes the human body as a whole or a single organ as well. An individual’s temperament phenotype changes during the various stages of life and is largely affected by the interactions of genotype, environmental effects, and lifestyle choices [3].

Discussion, interpretation and analysis of the main contents of this review take place through the following axes:

1. The True Meaning of the Term “Temperament” In Arabic

The term “temperament” has different synonyms in the Arabic language; the following definitions are literal translation according to the Dictionary of Lisan Al-Arab, pages: (4176 - 4177) and 4191. [4]:

• 1st – Mood:

This meaning is related to the psychological state of an individual (such as happiness, sadness, grief, joy, anger, and depression). And this definition has no consideration for the context of the current study, because it is far from what Ibn Sina intended at all. Ibn Sina used the term of “temperament” in the sense of composition or basic constitution of the body (mixture/chromosomes/genotype).

• 2nd-Mixture, "Mazeej"

This means a mixture of two fluids, such as a mix of different fruit juices, or mixture of different colored inks.

3rd-Any two types of things that unite or mix to become a mixture: “Khaleet/mazeej”

4th- The temperament of the body is what the body is based on of the blood, (Al-merrataine), and phlegm,” [Lisan Al-Arab, Ibn Manzoor: pages (4176-4177) - and 4191(. [4].

This 4thdefinition is of utmost importance in that it provides an Arabic interpretation of the concept of genotype; on the other hand, it includes the notion of “Al-merrataine”, which is the main focus of this review because it simply means DNA.

2. Literal Meaning of the Term (Al-Merrataine) in Arabic (Appendix 1)

According to the Dictionary of “Lisan al-Arab”, the literal translation of the meaning of the term (Al-merrataine/نَيْبَتْرَمَل) in Arabic can be presented as follows:

1. The Two Coiled Strands (Braid)

(This meaning refers to the nature of the dual structure of strands)

2. Fine Long Strands (Braid)

(This meaning refers to a specific characteristic of the strand structure)

3. The Power and Sharpness of the Mind

(This meaning refers to the specific quality of the molar/theoretical faculties according to Ibn Sina).

4. Long, Fine Well Coiled Strands (Tightly Braided)

(This meaning refers to a specific qualitative characteristic of the strength and structure/shape of strands)

5. Powerful, Intensity and Proper Organs

(This meaning refers to a specific quality of the strength of the physical/practical faculties according to Ibn Sina)

All the previous definitions lead to the conclusion that the expression of “Al-merratine in Arabic” symbolizes two strands tightly coiled around each other (DNA) that result in a proper body and a proper mind.

3. The Objective and Scientific Equivalent of the Meaning of the Ancient Arabic Term (Al-Merratine) with the Modern English Notion of DNA

According to the genetic approach of the current era with regard to DNA, the following can be stated:

- 1- DNA was first isolated by the Swiss physician Friedrich Miescher in 1869 [5]. Approximately more than 800 years after Ibn Sina's time
- 2-DNA is a long polymer made from repeating units called nucleotides [6].
- 3-The structure of DNA is dynamic along its length, being capable of coiling into tight loops and other shapes [7].
- 4-DNA does not usually exist as a single strand but instead as a pair that is held tightly together. [8].

Then the above-mentioned 4th definition of the meaning of

the term “temperament” in Arabic is literally the true accurate definition of the term “temperament” in Arabic language, for this reason, this definition is consistent with the general context of the current study, given that the body is formed basically of DNA (Al-merratine/chromosomes/nucleic acids/genes) and some complementary biological molecules such as blood (proteins), phlegm (unassimilated and incompletely digested proteins), fat, lipids, and organic acids. All these components together make up the “special structure/qualitative mixture” that can be confidently adopted as the “genotype”.

Mones et al., (2013) [3] discussed the term temperament, and they stated that, (literally temperament means: the state of mind or body), and this interpretation is very apply to the above-mentioned characteristics of “Al-merratine” especially for “the power and sharpness of the mind” and “Powerful, intensity and proper organs”.

4. Conclusion

Finally, the following can be concluded:

- The true meaning of the term “temperament” is (genotype) which mainly consists of two coiled strands of “Al-merratine”, typically as Ibn Sina envisioned it more than 800 years ago.
- The origin of the meaning of the word DNA first appeared in the cultural and scientific heritage of the Arabic language and is called “Al-merratine” in Arabic, which means “A long, fine, well coiled strands” and other synonyms.
- In the context of this review, we used the word (Al-merratine) as dual strand which completely matches the concept of DNA, which does not usually exist as a single strand but instead as a pair that is held tightly together. (Appendix 1, fig 1)

Appendix 1

Some excerpts according to the Dictionary of Lisan Al-Arab, which explain the different synonymous for the meaning of the word (Al-merratu - المَرَّطُ), the singular (Al-merratu), the dual (Al-merratine - المَرَّاتَانِ) and the plural (meraru or amrarun المَرَّارُونَ).

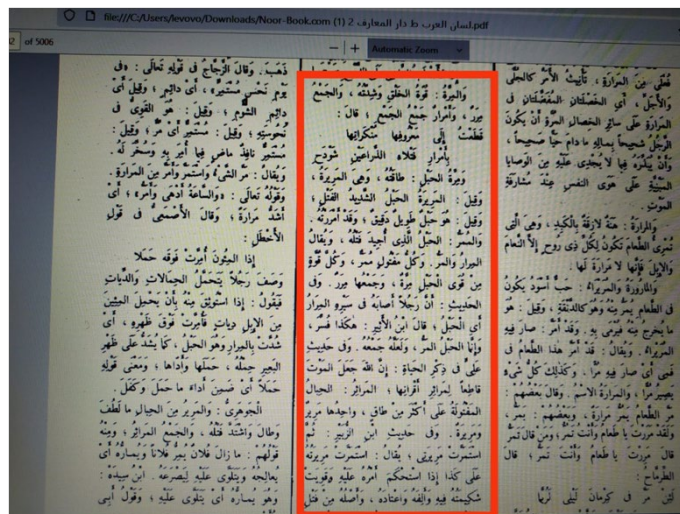


Figure 1: Page No 4176 - dictionary of Lisan al- Arab. This quote explains the meaning of the word (Al-merratu) as:

- The strength and intensity of creation.
- Highly coiled strand (cord).
- The rope that has been coiled well.
- Fine long cord.

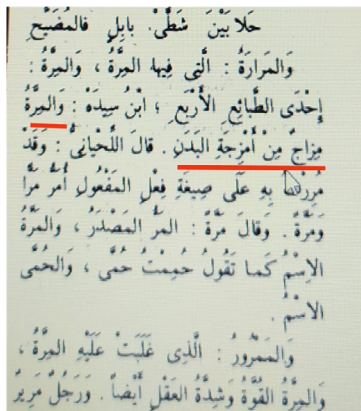


Figure 2: Page No 4176- Dictionary of Liasn al- Arab.

This quote explains the meaning of the word (Al-merratine) as a:

- One temperament (genotype) of the body's temperaments (genotypes).
- The strength and intensity of the mind.

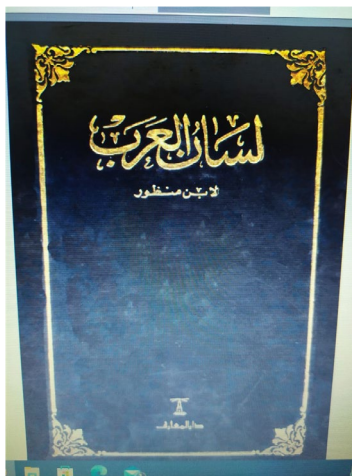


Figure 3: The cover of the Dictionary of Lisan Al-Arab.

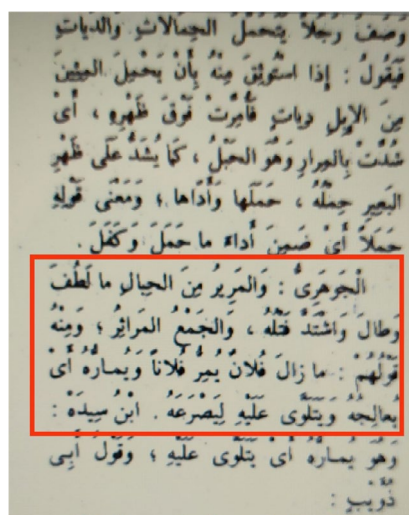


Figure 4: Page No 4176 - Dictionary of Liasn al- Arab.

This quote explains the meaning of the word (Al-merratine) as: The two ropes which are thin, fine, long and severely coiled.

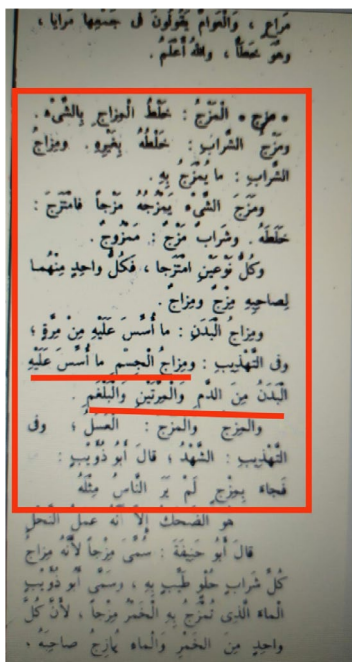


Figure 5: Page No 4191 - Dictionary of Liasn Al- Arab.

This quote explains the meaning of the definition of the “body temperament” as:
The temperament of the body is what the body is based on of the blood, (Al-merratine) , and phlegm.

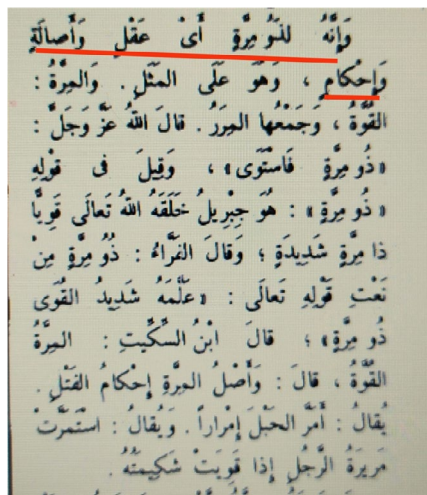


Figure 6: Page No 4177 - Dictionary of Liasn al- Arab.

This quote explains the meaning of the word (Al-merratin) as:

- The man who has (Al-merratu) is the man of sharp and precision reason.
- The core of the (Al-merratu) is the tightening of the coiled.

References

1. Al-Biruni Institute for Oriental Studies Library- Tashkent – Manuscript title: *Treatise on Cardiac Drugs (Medical Sciences)* – Al-Raeis, Ibn Sina: Al-Husayn Ibn Abdullah Abu Ali- Pas. (428 AH-1037AD) – Manuscript number: 2275 – 17 p. (102-118) – Al-Aalam: 241/2 – Mojamaa Al-Moalefein:

20/4 – Al-Hedaya: 308/11].

2. Zaabal, M. M. M. (2023). Genetic Interpretation of Some Medico-Philosophical Theories of Ibn Sina-3-Ibn Sinaâ€™s Theory of the Temperament. *Biomedical Journal of Scientific & Technical Research*, 53(3), 44742-44747.
3. Abu-Asab, M., Amri, H., & Micozzi, M. S. (2013). Avicenna's medicine: a new translation of the 11th-century canon with practical applications for integrative health care. Simon and Schuster.
4. Dictionary of “Lisan Al-Arab “Ibn Manzoom, 1330 H. *Dar El-Maaref. Cairo, Egypt. P: 1229, 4177- 4191.*

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5. Avicenna, & Gruner, O. C. (1930). A Treatise on the Canon of Medicine. Augustus M. Kelly.
 6. Dahm, R. (2008). Discovering DNA: Friedrich Miescher and the early years of nucleic acid research. *Human genetics*, 122, 565-581.
 7. Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., & Walter, P. (2002). Plant development. In *Molecular Biology of the Cell*. 4th edition. Garland Science.
 8. Irobalieva, R. N., Fogg, J. M., Catanese Jr, D. J., Sutthibutpong, T., Chen, M., Barker, A. K., & Zechiedrich, L. (2015). Structural diversity of supercoiled DNA. *Nature communications*, 6(1), 8440.

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