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Mini Review

Chemical-Physical Processes in the Contact of Water and Organic Molecules

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Objective

It is assumed that simple organic compounds, such as carbon chains of various shapes or simple compounds such as methane molecules, exist in space or formed under extraterrestrial conditions [8]. Under atmospheric conditions and in contact with water on early Earth, these first organic molecules evolved. This raises the question of which chemical-physical processes are the basis? There are no "coincidences" in nature. Being develops from the confluence of physical laws under the given conditions. Thus, one must understand the confluence of simple organic compounds with terrestrial water, which, under the influence of electromagnetic radiation in the form of light, magnetism, and magnetic resonance energies, as well as gravity, created conditions that made development possible. These are thus physical-chemical processes in a specific geophysical constellation of a habitable zone. An attempt will be made to explain the interaction of the laws in their fundamental conditions on the basis of the properties of water and the triggering of chemical evolution.

Keywords: Evolution of molecules, Water structures, Dynamics of life development

Introduction

Biological research involves working with systems of extreme complexity. This requires an interdisciplinary approach. However, difficulties in understanding these systems arise because questions of morphology and physiology do not necessarily overlap. This has led to the term Heisenberg's problem. He stated: "*The more we reduce to functional elements, the less we observe the state of life, and the more we study the state of life, the less we learn about functional elements.*"

In this sense, the physical properties of water can be seen as the basis for considering chemical evolution. Water is a simple molecule. With two hydrogen atoms and one oxygen atom as H_2O, it forms a dipole molecule and is electrically neutral. Nevertheless, it is a fascinating molecule that only reveals its significance in contact with organic substances. The water molecule is one thing, but as a liquid, it offers relationships that provide physical conditions that enable chemical evolution. And these conditions are the basis of all life, including the current living conditions of all species of living beings.

Discussion

Fundamental insights into the processes of development and the persistence of life have been compiled by Fels and colleagues [3]. Since water was the first point of contact for a combination of simple organic molecules in the Earth's primordial oceans, the analysis of its physical and chemical properties is of paramount importance. Insights into this can be found in the hydrological studies of Pollack [7]. They provide insights into the structure and structural changes of water and thus its significance for the changing energy transfer in response to the Earth's magnetic field and electromagnetic radiation. Water is not uniform. Water undergoes a special transformation of its character and physical properties in contact with the interfaces of organic matter. Pollack's studies revealed that water in these areas is highly charged and can absorb and emit electromagnetic radiation. Trophic levels emerge. The water molecule is inherently neutral. The oxygen atom is doubly charged, while the hydrogen atoms each have a positive charge. However, the formation of hexameter structures frequently observed in nature also oc-

curs in water. These hexagonal structural formations in water cause charge changes in certain areas of the water, resulting in a charge of minus 1 on the hexagon, as charge calculations have shown. The electronegative charges enable a displacement and stabilization of the hexagonal layers. The intermolecular forces of attraction correspond to the nature of hydrogen bonds, which exist between a covalently bonded hydrogen atom and a lone pair of electrons from another atom in an atomic group. Electronegative layers on one side and the positive charge on the other side can hold the two layers together due to electrostatic attraction. However, the resulting electronegative charge also enables contact with other ionized structures. It owes its stability to magnetic resonance.

A change in water's density causes a differentiation of the light absorption spectrum in the UV range and the infrared range of visible light, thus influencing its energetically changing properties. Based on quantum field theory, Del Giudice [1,2] postulates submicroscopically small coherent regions of water. This connection of water molecules can be viewed as antennas that absorb electromagnetic energy from outside. This energy input allows the molecules to release electrons, which they need for chemical reactions. The incoming energy causes molecules to break up. In this sense, this also applies to water molecules, allowing them to make contact with other substances. The energy generated by wavelengths resonates with the water molecules. This does not only apply to "exposed" systems. Generally speaking, the modern quantum coherence concept, self-organization, deterministic chaos and reciprocal causality in biology dictates an integration of linearity and non-linearity of molecules [9,10].

After all these considerations, the question arises: How could the development of elements typical for life come about? A first building block must be seen in the properties of structured surfaces of water in the contact area with organic molecules, as described [6,7]. These structured water layers possess a negative charge and are thus capable of forming hydrogen-bond-like connections. This contact could also polarize the organic molecules with respect to other organic molecules. In addition, there is the energy transfer by photons from the exclusion zone region in the surface area of organic molecules. This could cause a change in the energetic conditions of the electron systems. The resonance energy of the surrounding pulsed magnetic fields makes a significant contribution to the energy balance. According to the Zeemann effect, the interpretation in this context must be considered speculative, this could lead to a splitting of the energy levels and thus trigger a change in the reactivity of the molecules.

The substances of the primordial oceans contained not only organic molecules, but also elements of diverse types and properties. Physical norms likely came into play during chemical processes, leading to the formation of more complex structures. Taking carbon as an example, it is known that carbon atoms can form diverse compounds. Carbon atoms can form chains, rings, and other structures. This allows us to draw conclusions about primordial molecules similar to amino acids, which appear to be present in the extraterrestrial dust of space. With the increasing concentration of such changing molecules in the archaic oceans, conditions arose that led to ever new chemical reactions, to increasingly differentiated molecular forms, and thus to ever greater diversity.

The development of life on Earth can be divided into several processes, although these phases are dynamic:

i. First contacts of terrestrial organic molecules with terrestrial water.

ii. Development of further differentiated molecules in conjunction with dissolved substances in the primordial oceans and their dynamic currents.

iii. Formation of the first autonomously developing molecules with metabolic-like processes. Beginnings of reduplication.

iv. Emergence of cellular structures with functional criteria of life as currently defined [5].

v. Explosive differentiation into all-natural life forms [4].

The complex nature of development is not limited to the relationships presented. If one traces the significance and changes that these components have undergone over the course of development, one also finds them in the functional regulations of highly developed biological systems. One thing is certain and remains firmly established: the importance of fundamental physical and quantum-mechanical laws, even though the latter do not always seem to be fundamentally explainable. One example of this can be found in photon emissions, the ultra-weak radiation in the functional system of multicellular systems [10]. The regulation of biochemical processes governed by this radiation is far from being fully understood. Likewise, the complex dynamic regulations of the influences of astronomical dimensions, such as that of the Moon-Earth system, are often unclear, although one can assume that these systems may also have played a role in the early development of life on Earth. Life has emerged from a complex interweaving of physical phenomena and will continue to evolve in this sense.

Conclusion

When considering the processes leading to the emergence of life on Earth, one must view these processes from the perspective of the planetary situation. The Earth is embedded in the system and processes of space. Here, physical laws govern these processes. It is assumed that interterrestrial dust clouds contain particles that, according to the chemical definition, are organic materials. The penetration of these organic molecules into the Earth's atmosphere, and thus primarily into the water of the primordial oceans, could have led these materials to new and expanded chemical development, as described. However, this process cannot be equated with the beginning of autonomously evolving life forms. It is initially only a more or less limited development of the diversity of organic molecules. A process that was subject to changing geophysical and climatic influences and likely lasted for millions of years. Only the increase in the concentration of these molecules and their diversity, combined with the dynamics of ocean movement and the complex interaction of dynamic factors in general, led to chemical contacts and thus to more complex molecular forms, which ultimately triggered an

independent development in isolation from the aqueous environment: metabolism, replication, and differentiation. Life developed through these processes of physical-chemical evolution.

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