ROLE OF PARASITES IN ECOSYSTEMS AND BIOSPHERE

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Annotation: In this article we will consider the role of parasites in ecosystems and biosphere. So the role of parasites is very large and has great benefits for organisms. Populations of both hosts and parasites are mandatory members of biogeocenoses, the stability of which depends, in particular, on the species diversity of living organisms that make up their composition. Parasites in ecosystems are consumers of the II and III orders and play an essential role in the biotic circulation of substances.

Key word: Biogeocenoses, microevolutionary, nonspecific genetic, ultimately, immunity, parasite, ecosystems

The environment, plants and animals since the beginning of mankind the universe, the mysteries of events and processes that take place in nature learned Be the first to use them in the next life began to gain experience. It is a natural phenomenon and specific information on specific aspects of the process collected. Thus human thinking is advanced, logical thinking through the essence of life in nature, in the life of plants and animals seasonal adaptations, events and processes that occur in nature there was an opportunity to understand.

The fact that one organism (parasite) lives at the expense of another organism (host) is called parasitism. There are two types of parasites that interact with the host organism: ectoparasites live on the outside of the host body (lice, fleas, mites, bed bugs); endoparasites live in the body cavity, internal organs and tissues, cells of the host organism (malaria plasmodia, ascarids, tapeworms, tapeworms). Endoparasites have a number of adaptations to the host organism, including small size, simplification of the body structure, protective body cover, multiplication of offspring, exchange of the host organism with another in the life cycle, and so on.

Even the most pathogenic of them, causing the death of a large number of host individuals, act, on the one hand, as stabilizers of the number of hosts, periodically removing an excess of organisms from populations, which could lead to a disturbance in the ecological balance. On the other hand, the most severe course of parasitic diseases is usually observed in individuals with weakened immunity, suffering from hereditary defects or with an innate predisposition to allergic reactions.

The death of these very organisms has a beneficial role on the genetic structure of the host populations, eliminating alleles from its host that reduce viability. Thus, the relationship between populations of hosts and parasites under the conditions of specific biogeocenoses contributes to their resistance and at the same time acts as a factor of natural selection, reducing the nonspecific genetic burden of the host population. with him. This ensures the activation of microevolutionary processes in the remaining part of the parasite population, ultimately contributing to the emergence of new adaptations in them.

Self-management of biogeocenoses is the ability to restore the balance and interactions between their components after natural or anthropogenic influences. Due to the biotic relationships in the biogeocenosis, the number of species is kept constant. For example, high yields increase the number of plant seeds that increase the number of rodents that feed on them, which in turn increases the number of predators. An increase in the number of predators will lead to a decrease in the number of prey animals. Thus, predators control the number of herbivores, and herbivores control the number of plants. A similar situation can be seen in the "parasite-master" relationship.

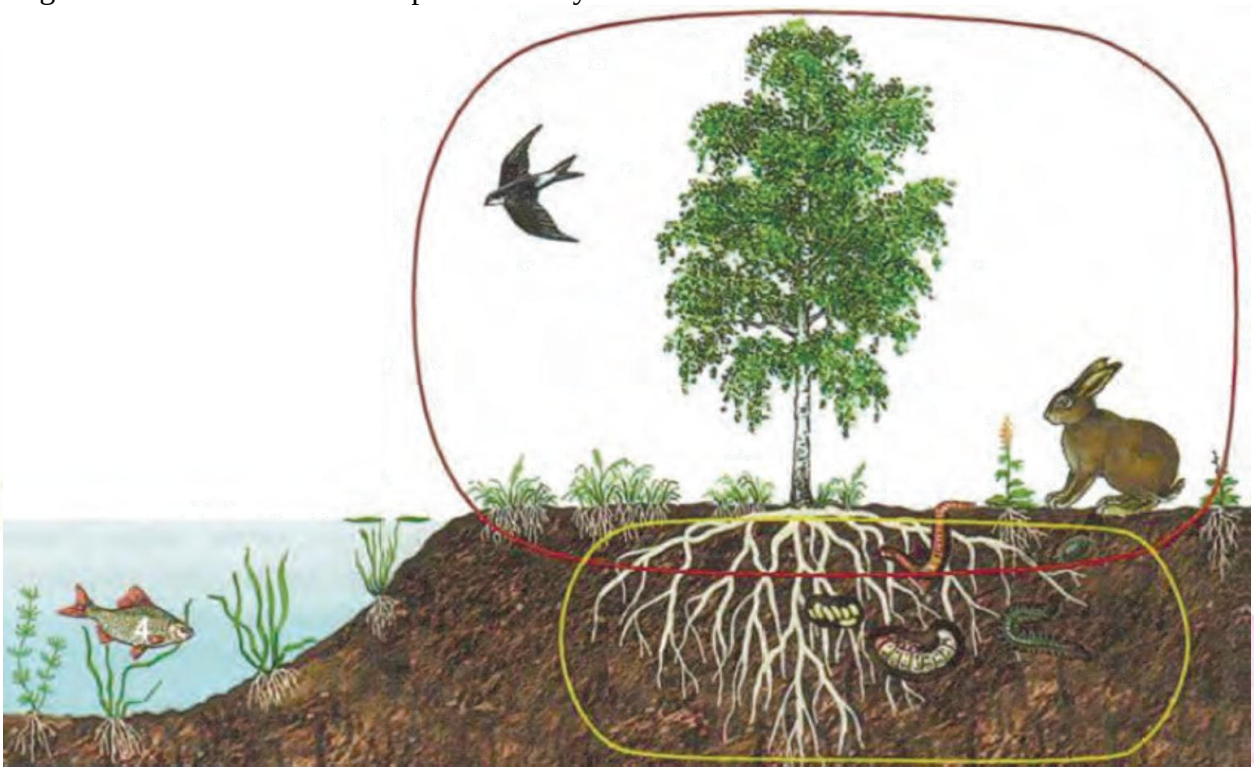
There are four habitats for living organisms on Earth: aquatic, terrestrial, terrestrial, and living (for parasites and symbionts). Each environment has its own conditions.

Because the environment in the host's body is comfortable and optimal for living, parasites do not have complex body structures and adaptation mechanisms. As a result, their body structure has been simplified, and

some of their organs have been reduced. For example, parasitic worms do not have motor organs. Most have attachments (loops, pacifiers) to hold them firmly in place on the owner's body.

The digestive system of parasites is simplified by the fact that the parasites found in the digestive system of living organisms feed on easily digestible food. In liverworms, the digestive system is simplified, while in cattle, the tapeworm is completely lost. Living in an oxygen-free environment led to the transition to anaerobic respiration. This method of breathing is justified by the fact that parasites consume less energy and more food to digest.

Unlike organisms that live freely under the direct influence of environmental factors, parasites do not interact directly with the external environment. This has led to the simplification of the nervous system and sensory organs. There is no need to adapt to defend yourself from enemies.



Living organisms can live in one or more environments. The environment in which life first originates is the aquatic environment. Historically, living things have evolved into terrestrial-aerial environments. The result is plants and animals that have adapted to the new environment. As a result of the vital activity of living organisms, soil is formed and some organisms have adapted to living in the soil. The environment of the organism is occupied by parasites and symbionts.

Parasites play a very important role in the functioning of the food webs of natural ecosystems. Through the food chains, which form rather complex food or "trophic" webs and "pyramids" in ecosystems, energy is transmitted, which is used by the organisms of the living part (biota) of ecosystems. In routine environmental studies, the role of parasites in energy transfer is rarely taken into account due to the difficulty of quantifying these organisms. However, it turned out that they play an important role in the formation of the structure of food webs and their activity must be taken into account when assessing the sustainability of ecosystems.

Parasites actually "dropped out" from this basis and we know relatively little about their role in the functioning of natural ecosystems. " Dr. Lafferty and his colleagues tried to find out exactly how this group of organisms affects the processes occurring in food webs. As a result, scientists have discovered a surprising fact: parasites can dominate the process of energy transfer in the food webs of natural ecosystems. On average, in the ecosystems studied by scientists, parasites provided more links than those associated with predator-prey

relationships. Thus, it is the parasites that can be the thread that connects the biological community into a single whole. The researchers emphasize that when studying natural ecosystems, it is necessary to take into account the role of parasites. Without them, the picture of nature will be incomplete.

Living organisms are the habitat for parasites and organisms that live in symbiosis. Living organisms - plants, animals, including the human body - serve as habitats for other organisms. The use of one organism by another as a habitat is a long-standing and widespread phenomenon in nature. An organism whose body serves as a habitat for another organism is called its host. Parasitic bacteria, fungi, invertebrates; simple animals and algae that live in symbiosis use the host organism as a habitat and food source.

Parasitism also promotes speciation through the emergence of complicatobionts (from Latin complicatio - complication, complex) - a type of living systems or, more precisely, superorganic structures, in some case leading to a stable formation of a species. Strictly speaking, a complicatobiont, as one of the consequences of evolution, can be formed on the basis of any forms of symbiotic relationships with the subsequent elimination of nonviable forms. An evolutionary example of the formation of a complicatobiont can serve as lichens formed by dissimilar organisms: fungus (mycobiont) and algae, or cyanobacteria (photobiont), formed on the basis of parasitism, presumably at the end of the Mesozoic.

Conclusion

At present, it is difficult to underestimate the diversity and variability of all the features of the functioning of the parasite - host systems, as well as the role of this type of interspecific relations in ecosystems and the biosphere. Humanity will have to discover and study new parasitic systems, ask interdisciplinary questions of parasitology, and at the same time continue to study the already known and described types of parasitic organisms. And all this is based on a powerful foundation of basic disciplines, based on ecology and zoology, together with all the works of the world scientific community and, in particular, Russian parasitologists of the past and the century before last.

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