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### **BIODIVERSITY : CLASSIFICATION OF ORGANISMS AS SCIENTIFIC PROBLEM**

The strategy of scientific support for the transition to the sustainable development requires a scientists to explain the organic evolution and biodiversity classification. Publications of recent decades [1-5 et al.] have shown that: 1) the only universally accepted taxonomy of living organisms does not exist; 2) the molecular phylogeny newly views phylogenetic relationships and taxonomy; 3) the number of species of cultivated plants and farm animals is negligible compared with the total number of species. Setting the place of a type in the system will help foreseeing its properties, including useful to humans, which is important in the connection with the development of genetic engineering.

The phylogeny and taxonomy currently put questions without answers; have many hypotheses and unreliable methods for isolating old taxa into new ones. There are many constraints in describing protista and prokaryotes in terms of epidemiology and phylogeography. There is no widely recognized systematics of living organisms; each of its modern scientific versions is imperfect and temporary (for ease of scientists). We recommend to use the system of 7 kingdoms (Viruses, Bacteria, Archaea, Protista, Plants, Fungi, Animals) at schools, which is understandable for teachers and students, because nobody canceled: 1) categories of taxonomy (kingdom, type, class, order, family, genus, species); 2) the subject and objects of the botany (plants), zoology (animals), microbiology (bacteria, protista), mycology (fungi) and virology (viruses). The Protista consists of different in structure and way of life nuclear organisms (over 150 thousand species) not having tissue differentiation. This group includes unicellular eukaryotes.

As a result of molecular phylogeny, S.M. Adl (2012) try to divide eukaryotes not into kingdoms but into the branches of the phylogenetic tree [3]. Thus, animals, fungi, unicellular and colonial choanoflagellate (collar flagellate) belong to the Opisthokonta branch; higher plants, green, red and stoneworts – to the second – Archaeplastida. The remaining branches are occupied by protozoa and algae, which are named quite unusual: Amoebozoa, Excavata, integrated group SAR (Stramenopiles + Alveolata + Rhizaria) – the derivative of Stramenopiles (synonyms: Heterokonta, Chrysoomonada – golden and brown algae), Alveolata (combines ciliates, spores and dinoflagellate), Rhizaria (foraminifera, radiolarians, Apusozoa and others). This scheme can be taken as a working hypothesis. It is not relevant for schools because it did not stand a long time.

We consider that further investigations will be focused on changing the classification of living organisms given: 1) the latest advances in the molecular phylogeny on branches of eukaryotes (Amoebozoa, Opisthokonta, Archaeplastida, Excavata, supergroup SAR); horizontal gene transfer as a factor of the prokaryotes evolution; symbiotic scenario of the eukaryotes origin; 2) peculiarities of the school curriculum, pupils' age and teachers' pedagogical skills. All these aspects are important for biology teachers in terms of the teaching principles of scientific, clear and visible learning.

The main problems of phylogeny (justification of family ties) and the origin of makrotaxa are caused by the lack of information about the organisms basing phylogenetic branches of eukaryotes. Then, it is advisable to study the flagellum protista. In turn, branches basing the Tree of Life require certain genes to be researched so that their affiliation to the main groups can be proved.

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