VI International Conference
ADVANCES IN MODERN PHYCOLOGY

BOOK OF ABSTRACTS

15-17 May 2019, Kyiv, Ukraine

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VI International Conference

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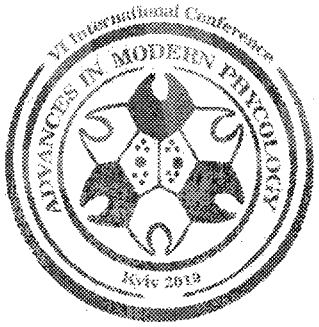

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taxa were identified by H. Lange-Bertalot with co-authors (Lange-Bertalot et al. 2003) mainly from samples from Sardinia island, 1 taxon is from springs in Germany (Werum and Lange-Bertalot 2004) and 5 new taxa from fresh water bodies and soil of the South Atlantic islands (Zidarova et al. 2010). Until recently, many of the described species were identified with *Hantzschia amphioxys*, which is positioned as a cosmopolitan species.

We have studied morphology, ultrastructure and phylogeny of 13 soil diatom strains, which belongs to *H. amphioxys* s.l. using 18S rDNA, 28S rDNA and *rbc*L. We show that our strains contain five different species of *Hantzschia*, including three new for science. Five strains we identified as *H. abundans* Lange-Bertalot. We indicated an insignificant curvature of the raphe near its external central ends. Four of the examined strains were represented by different populations of *H. amphioxys* and their morphological characteristics are fully corresponded with accepted isolectotype and epitype. The main specific features of this species include 21-25 striae in 10 μm, 6-11 fibulae in 10 μm, 40-50 areolae in 10 μm and internal central raphe endings bent to opposite directions. Three new species were described based on differences with shape of the valves, a significant excess of the dimensional characteristics, a smaller number of striae and areolae in 10 μm and the position of the internal central raphe ends. Based on the study of morphological variability and phylogeny of soil *Hantzschia*-species from different geographical locations we concluded that some sympatric populations of pseudocryptic taxa are exist in Holarctic.

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ALGAE AS INDICATORS OF THE ECOLOGICAL STATE OF MARINE ECOSYSTEMS IN THE COASTAL PART OF THE AZOV SEA

The Sea of Azov is socially and economically important for Ukraine. It provides the development of fishing, transportation, recreation and other industries. In general, the ecological situation of the Sea of Azov corresponds to the

global tendencies of anthropogenic transformation of marine ecosystems. At the same time, it is characterized by its own peculiarities such as shallowness, continentality, significant inflow of river waters, and poor connection with the Black Sea.

Algae are used worldwide for the assessment of anthropogenic changes in marine ecosystems (Mocenni and Vicino, 2006; Gharib and Dorgham, 2006; Gharib et al., 2011; Raveh et al., 2015; Wells et al., 2015; Arroyo and Bonsdorff, 2016). Potential of algae used as indicators is much greater than that of physical-chemical methods. For this reason, their use is obligatory according to the requirements of Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD) (European Commission, 2008).

Research of algae in the Sea of Azov has a long history. The first information about algae of the Sea of Azov and its bay Syvash is represented in the works of K.I. Meyer and V.M. Arnoldi and is dated within the beginning of the 20th century. The works were later complemented by both native and foreign scientists (Kovaleva, 2016). Different parts of the Sea of Azov are explored unequally. The algae in the western and southwestern Sea of Azov are the least explored. The latest data go back to the beginning and the middle of the 20th century and concern Molochnyi Estuary (Proshkina-Lavrenko, 1950; Vladimirova, 1960 a), Sivash lake (Meyer, 1915; Proshkina-Lavrenko, 1940, 1962; Vladimirova, 1960 b; Ivanov, 1960) and Henichesk Strait (Merezhkowsky, 1902).

In summer 2017, the excessive growth of macrophytic algae was observed in waters of the Sea of Azov in this coastal area. It produced uncomfortable conditions for tourists and residents of the coastal area. The algae proliferated on the surface of water 10-20 meters away from the water's edge. They were thinning out further off the coast. Their samples were taken during the expeditions to 5 stations of the coastal waters of the Sea of Azov (Berdiansk spit (the end of the spit), the area of Lysiacha clough (Berdiansk district), village Botievo, Stepanivka spit, island Biriuchyi (border "Chynka")). The object of research was macrophytic and microscopic algae from algal blooms. The material was gathered in accordance with accepted procedures in hydrobiology (Topachevsky and Masyuk, 1984). Nomenclature of representatives is given in accordance with the identification guide of national data collection (Tsarenko et al., 2006).

The main producer of macroscopic proliferations on island Biriuchyi, in the area of Lysiacha clough and on Berdiansk spit was *Cladophora albida* (Nees) Kütz., a green alga from an order *Siphonocladales*. On Berdiansk spit there was an

accumulation of filamentous algae with higher aquatic plants (*Zostera marina* L., *Ruppia maritima* L.). On Stepanivka spit, the main producer of macroscopic proliferation was another species from a genus *Cladophora* Kütz. – *Cladophora siwaschensis* K.J. Meyer. However, filaments of this species were not numerous in the area of Lysiacha clough. A great number of discovered diatoms were attached to macrophytes. Only single members of division Rhodophyta were discovered among filamentous algae.

During the research 18 algae species that were a part of proliferation of macroscopic algae were found at different points. They were representatives of the following divisions: Bacillariophyta – 10 species, Chlorophyta – 6 species, Rhodophyta – 2 species.

Thus, information about different algae characteristics is an integral part of understanding and predicting changes in marine ecosystems. It is valuable for both current assessment of ecosystems and long-term monitoring programs.

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MOST ANCIENT PODOLIA'S ALGAE AS TRIGGER FOR THE FORMATION OF PHOSPHORITES

The most ancient and numerous imprints of algae in Podolian Middle Dnister area are found and described from Kalyus Beds. It is Nagoryany Formation of Upper Vendian.

Kalyus Beds are represented by homogeneous, dark-grey, thin-bedded mudstones. Characteristic feature of the beds is the occurrence of phosphorite concretions and two levels with algae remains (Sokolov, Fedonkin, 1985 a, b).

Three species of Vendetenian algae make up the Metaphyta complex – *Vendotaenia antiqua* Gnil., *Fusosquamula viasovi* Ass., *Pilitella composite* Ass. In the rock, the algae are non-mineralized elastic brown ribbons, which occur either singly or completely cover of the bedding surface. Vendetenida tapes have a tissue-like structure, but without signs of a conductive system. This proves their algal nature. Vendotaenia are among the most ancient Metaphyta. According to the general