

Nitella mucronata and *N. translucens* – contribution to occurrence and ecology in Slovakia

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In 1999 we found two new species of macroscopic algae in the territory of Slovakia – *Nitella mucronata* (A. Braun) Miquel 1840 and *N. translucens* (Persoon) Agardh 1807. Brief morphological description, ecological and chorological characteristics are included. The plant community of *Nitelletum mucronatae* is the first record in Slovakia. The name of *Nitelletum mucronatae* was validated within the meaning of the Code of the phytosociological nomenclature.

Key words: algae, *Nitella mucronata*, *N. translucens*, syntaxonomy, *Nitelletum mucronatae*, new combination, Slovakia.

Introduction

During the research of aquatic and marsh plant communities in the catchment of Ipeľ river we registered the occurrence of two species of genus *Nitella*, *N. mucronata* and *N. translucens*. Although their detailed descriptions and the identification key were published some years ago by KRAUSE (1997), neither of these species was mentioned from Slovakia up to the present (HINDÁK & HINDÁKOVÁ, 1998). We present a short description, ecological characteristics and chorology of both these species.

The stoneworts come under the macroscopic algae with direct and differentiated thallus resembling the recent horsetails. In term of systematics they come under the order Charales and the family Characeae.

Results and discussion

Nitella mucronata (A. Braun) Miquel 1840

Nitella mucronata is 15 to 30 cm high alga, numerous branched and spacious, dark green to black green and shining. The main axes are 0.8 to 1.2 mm wide. Internodes have app. the same length as lateral branches. One longer twig and one twig shorter than others occur in each whorl. The stipulae are 1 to 8 cm long and mostly 6 in number. Cortex and spines are absent.

The species is widespread almost through the entire Europe and partially also in Northern Africa. According to KRAUSE (1997), *Nitella mucronata* maybe found on numerous localities among Pyrenees, Finland and Hungary. The most frequent occurrence of *Nitella mucronata* was demonstrated from various regions of Germany,

Poland, France, Ireland, Norway and Turkey. It has been mentioned also from the western part of Iberian Peninsula and the southeastern region of Great Britain. In northern Africa it was ascertained in Morocco, Algeria and Egypt. HUSÁK (1985) reported its occurrence also in the territory of former Czechoslovakia. However, this evidence is related to the Czech Republic (water spring in Borim forest near Valtice; note of the authors).

Nitella mucronata grows in the stagnant or slowly flowing water with a high production of the organic biomass. The optimal depth is about 1–2 m, but the sporadic occurrence may reach also up to 25 m. *N. mucronata* occupies especially the river oxbows and (although less frequently) mires and outfalls of the subsoil water with neutral to moderately alkaline pH values. It is relatively less sensitive to eutrophication (KRAUSE, 1997).

Recently we have observed *Nitella mucronata* also on the territory of Slovakia, in orographical district of Lučenská kotlina Basin, WNW of the town Poltár. It grew in an artificially ditched excavation with a shallow water level in the flood plain of the Ipel river. The bottom was created by a gravel level covered with silt, only in some parts with clay. The water depth was 15–60 cm. A few individuals of *Typha latifolia* grew on the margin of the ditch. Nevertheless, the occurrence of *N. mucronata* was not confirmed during the repeated visit in the next summer 2000. At that time, the water was only on the bottom of the ditch and entirely absented during a part of the vegetation period.

The community with the dominance of *N. mucronata* from the northeastern region of Poland, was improperly described by TOMASZEWICZ (1979) as *Nitelletum mucronatae* Tomaszewicz 1979 (prov.). This community is known also from other neighbouring countries, namely from Austria (SCHRATT, 1993) and Hungary (BORHIDI & SÁNTA, 1999). According to TOMASZEWICZ (1979), this community is well-characterised ecologically as well as floristically. In Poland, it grows mainly in a relatively deep mesothropic water with the neutral to slightly alkaline pH values. Although *N. mucronata* is dominant, the species like *Chara fragilis*, *Elodea canadensis*, *Fontinalis antipyretica* and *Nitellopsis obtusa* are also characterised by a relatively high coverage and constancy.

Because TOMASZEWICZ (1979) described *Nitelletum mucronatae* without the accordance to the Code of the phytosociological nomenclature (Art. 3b) and only the table of constancy is presented in his paper, it is necessary to define the

neotype (Art. 21). Unfortunately, we were not able to acquire the original relevé from Poland (applicable as the neotype) either from the accessible literature or from the author of the primary description of the community. Therefore the neotype was defined (after our decision consulted with Prof. H. TOMASZEWICZ) following the recent relevé from Slovakia.

Nitelletum mucronatae Tomaszewicz ex Hrivnák et al. hoc loco

SK, Lučenská kotlina Basin, Village Zelené, the ditch with a water in the northwestern margin of the fishpond, latitude 48°26.2953' N; longitude 19°46.9458' E; grid 7584 D1; altitude 220 m a.s.l.; cover E 100 %; Hrivnák; September 17, 1999 (neotype).

Nitella mucronata 5, *Ceratophyllum demersum* +, *Typha latifolia* r.

Nitella translucens (Persoon) Agardh 1807

Nitella translucens is 30–120 cm high, shining and translucent. Evidently thick undivided and only sparse stipules in the whorl are typical for its habitus. The axes are 1–3 cm wide. Internodes are longer as the length of stipules. The number of stipules is usually 4. Cortex cells and spines are absent.

Nitella translucens occurs in western part of Europe, from Portugal over the western part of France, Great Britain, Ireland, Belgium, Holland, northwestern regions of Germany to Denmark. Out of this main area it also occurs in Sweden, northern Africa and Austria (var. *confervoides*). The older data from Sicily and Corsica require the verification.

The species occupies eutrophic water with acid to neutral pH values. *N. translucens* grows in the silt or the turf, rarely in the sand. It is a halophobic species, non-incrusting and only rarely creating an obscure calcareous ring-like structure. *N. translucens* creates the stands that come under the association *Nitelletum translucensis* Corillion 1957 (KRAUSE, 1997).

The large population of *N. translucens* was recorded in Lučenská kotlina Basin, near Village Nitra nad Ipľom. During the summer period it grew in shallow, eutrophic and overheated water at the gravel ditch in the flood plain of Ipel river. The gravel bottom was covered with a coat of the silt and mud. The pH value of water was slightly alkaline (pH 7.36). The initial stands of *Typha latifolia* grew on the boundary margin of the studied area. *N. translucens* grew in the community with dominance of the species *Potamogeton trichoides*.

SK, Lučenská kotlina Basin, Village Nitra nad Ipľom, gravel ditches on the right bank of Ipľ river, latitude 48°19.4237' N; longitude 19°46.6848' E; grid 7684 D3; altitude 182 m a.s.l.; cover E 100%; Hrivnák; September 17, 1999
Potamogeton trichoides 5, *Lemna minor* 5, *Alisma plantago-aquatica* 2a, *Nitella translucens* 2a, *Ceratophyllum submersum* 1, *Echinochloa crus-galli* 1, *Salix purpurea* juv. 1, *Eleocharis palustris* +, *Typha latifolia* +.

Note

The nomenclature of the plant taxa is given following MARHOLD & HINDÁK (1998) and KRAUSE (1997). The relevés in the field were made using the methods of Zürich-Montpellier's approach using the estimation scale of BARKMAN et al. (1964).

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