

***Pediastrum privum* (PRINTZ) HEGEWALD in the Czech Republic**

***Pediastrum privum* v České republice**

Rodan G e r i š

Morava River Basin Authority, Dřevařská 11, CZ-601 75 Brno

Abstract

Pediastrum privum is relatively rare coccal green algal species with circumpolar boreo–alpine distribution on the north hemisphere. It prefers clear nordic lakes and peat bogs. Its remnants can also occur in the paleobotanical findings. This inconspicuous alga can be easily overlooked and differs from other species of genus *Pediastrum* in its size and shape. In Mai 2002 I found this alga in a little pond near Staré Město pod Landštejnem close to the Austrian border. The pond catchment which is almost unaffected by human activities extend in a cold and wet climatic area of South Bohemia. *Pediastrum privum* has not been found in the Czech Republic yet.

Introduction

Pediastrum privum has not been found in the Czech Republic yet. Its nearest locality is the Danube River close to Bratislava, western Slovakia (HINDÁK, personal communication). The type locality of *Pediastrum privum*, a rare green coccal alga, is a pond in Norway. The former name used for this species was *Pediastrum integrum* var. *privum* PRINTZ (KOMÁREK & FOTT 1983). HEGEWALD & SCHNEPF (1979) described it as a new species on the base of SEM studies of the cell wall structure.

The aim of this study is to describe the first Czech locality of this species.

Material and methods

The material were collected from a small pond Světlov near Staré Město pod Landštejnem (Southern Bohemia) during May 2002 (Fig 1.). Světlov is a small recreational water body, size 40x100 m, depth 1.5 m (formerly fishpond) on a nameless left-side tributary of the Pstruhovec Brook below the Landštejn Reservoir. The bottom of the pond is covered with deposited organic material and mud due to the former management. The water is dystrophic (yellow or brown colour, slightly acidic) and is not shaded by the vegetation. Its catchment area is covered by spruce forests. Phytoplankton and periphyton are dominated by diatoms and green algae (*Aulacoseira subarctica*, *Rhizosolenia*

longiseta, *Cyclotella* aff. *stelligera*, *Asterionella formosa*, *Fragilaria virescens*, *Closterium gracile*, *Closterium* sp., *Staurastrum* sp., *Scenedesmus* sp.).

Results

P. privum formed four-cell or eight-cell coenobia. Eight-cell coenobia had one asymmetric central cell and usually formed a minor part of the population (see Fig. 2,3). Four-cell coenobia were much more frequent (see Fig. 4,5). It is difficult to distinguish them from *Crucigenia tetrapedia* (KIRCHN) W. & G.S. WEST. Findings of eight-cell coenobia with their characteristic cross-wise cell arrangement, however, unambiguously prove the occurrence of *P. privum*. The occurrence of *Crucigenia tetrapedia*, on the other hand, are usually supported by findings of syncoenobia that can never occur in populations of *P. privum*, because of their quite different way of daughter cells formation. If in doubt, *Pediastrum privum* may be reliably distinguished from *Crucigenia tetrapedia* only by electron microscope (HEGEWALD & SCHNEPF, 1979). The cell wall surface of *C. tetrapedia* is smooth, but that of *P. privum* is covered with fine warts, just the same as in the species of genus *Tetraedron*.

Coenobia were up to 25 µm in diameter, cell length ranged from 5.7 to 12 width from 3.5 to 7.1 µm. Cells contained pyrenoid. The population of the Světlov pond was composed of both four and eight-cell coenobia. The morphology of *P. privum* was previously described by HEGEWALD & JEON (2000).

Pediastrum privum was found in the outer littoral zone among the *Carex* vegetation.

Discussion

Pediastrum privum has boreo-alpine distribution restricted only to northern hemisphere from the temperate zone to sub-arctic regions. It is known from Canada, Finland, Lithuania, Norway, northern Poland, northern Russia, Sweden, the northern part of the United States. The species was also found in South Korea (HEGEWALD & JEON 2000). In central Europe it has been found only in Switzerland (KOMÁREK & JANKOVSKÁ 2001). The south European localities are in Sanabria lake and in Valparaíso Reservoir in Spain (NEGRO et al. 2000). The fossil findings are known from Nieri-Suo in Karelia (north-western) Russia and in the specimens collected in polar part of Ural (Russia). We can expect an ancient occurrence in water biotopes of the Central Europe already in the late Glacial and early Holocene period (KOMÁREK & JANKOVSKÁ 2001).

JANKOVSKÁ & KOMÁREK (2000) consider *P. privum* an accessory species of fossil algal communities with dominant occurrence of *Pediastrum boryanum* var. *longicorne*, *P. integrum* and *Botryococcus pila* inhabiting small, cold,

dystrophic, unpolluted water bodies. The same seems to be true for recent populations. *P. privum* is restricted to clear, swampy and peaty waters rich in submerged vegetation or to clean northern lakes. *Pediastrum privum* probably occurs in other Central European localities as well but it may be overlooked because of its delicacy, paleness and small proportions.

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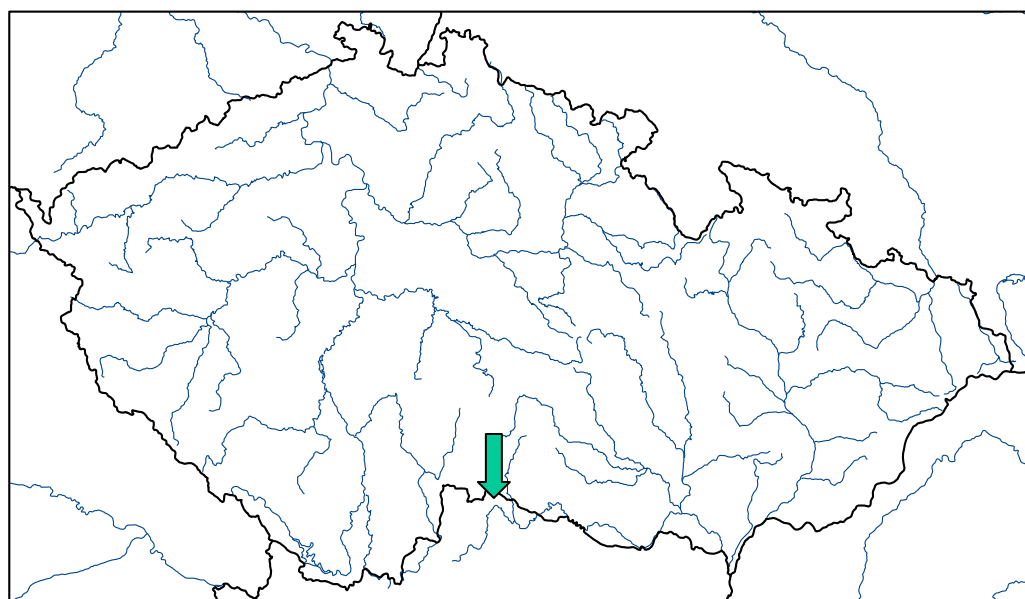
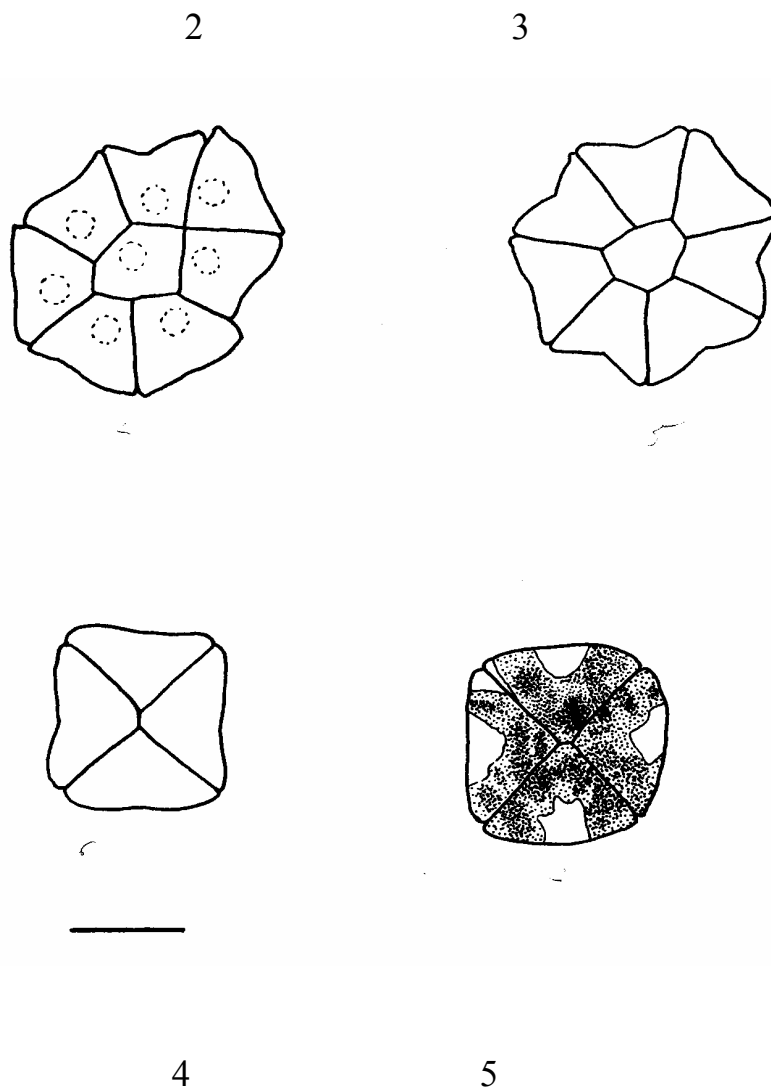


Fig 1: Location of pond Světlov



Figs 2-5: *Pediastrum privum*, bar scale 10 μm