

## On the Occurrence and the Taxonomy of the Genus *Microcrocis* P. RICHTER (*Cyanophyceae*)

K výskytu a taxonomii rodu *Microcrocis* P. RICHTER (*Cyanophyceae*)

Bohuslav Fott

FOTT B. (1972): On the occurrence and the taxonomy of the genus *Microcrocis* P. RICHTER (*Cyanophyceae*). — *Preslia, Praha*, 44: 97—99. The name of the only species of the genus *Microcrocis*, *M. dietelii* P. RICHTER 1892, is provided with type material and a figure of the type. The alga has been rediscovered in Czechoslovakia, U.S.A., the Soviet Union, France and probably in Sweden. The other species described as representatives of the synonymous genus *Holopedium* LAGERHEIM 1893 need to be rediscovered and confirmed as they are partly doubtful. — *Department of Botany, Caroline University of Prague, Benátská 2, Praha 2, Czechoslovakia.*]

The algal genus *Microcrocis* is considered to be rather rare in occurrence in comparison with the nearest genus *Merismopedia* and its taxonomy is confused. Some students e.g. LAGERHEIM (1883) of the older authors and BURRELLY (1970) of the modern ones, gather the representatives of the genus *Microcrocis* as a section *Holopedia* of the genus *Merismopedia*. Until now, about 5—6 species belonging to *Microcrocis* or *Holopedium* have been described but, with the exception of *Microcrocis dietelii* P. RICHTER, none of these species has been rediscovered, being studied by the respective author only; they are scantily described, with imperfect drawings and their difference from *Microcrocis dietelii* is not demonstrated. They are either partly synonymous with *M. dietelii* or totally doubtful, being probably coccoid stages of different blue-green algae.

It might be questioned what should be considered the first description of the type species and which generic name should be valid. The first name which belongs to the alga in question is *Merismopedia* (section *Holopedia*) *geminata* LAGERHEIM (1883: 43). This species has not yet been rediscovered, its description and figure are deficient and therefore its taxonomic position doubtful. On the other hand *Microcrocis dietelii* P. RICHTER issued by the author (1892: No. 548) as an exsiccatum is exactly described, and provided with a correct figure and type material; I have not examined it myself. Some authors judge that it could be identical with *Holopedium geminatum* (LAGERH.) LAGERHEIM 1883. But RICHTER (1893) refused this opinion and pointed out that the type of *Microcrocis dietelii* is quite different from that of LAGERHEIM'S *Merismopedia geminata*. That is true and as I have twice rediscovered the alga in question, I am of the opinion that the type species of the genus *Microcrocis* should be *M. dietelii* RICHTER 1892. Its description, provided with my drawing, runs as follows:

Cells cylindrical, broadly rounded at the ends, sometimes slightly attenuated in the middle, arranged in monostromatic (one-layered) colonies, joined together with colourless mucilage. There is only a narrow free margin of mucilage round the colony. Cells densely packed together, sometimes grouped in pairs, originating by successive cell division. Contents of cells granular, its colour

typical of blue-green algae. Larger colonies folded up at the edge, giving rise to two layers. This feature, together with the irregular arrangement of cylindrical cells, arranged with their axes perpendicular to the plane of the colony, distinguish the genus *Microcrocis* from *Merismopedia*.

Dimensions of cells 14–16  $\mu\text{m}$  in length, 3.4–4  $\mu\text{m}$  in breadth. The dimensions given by RICHTER (1893) are certainly erroneous, as the ratio of length to breadth is 4 : 1 which is exactly the same as in my material from Czechoslovakia and in the figure of RICHTER, whereas in the description of RICHTER the ratio is 2 : 1 (i.e. : 74; "cellul. long. 14  $\mu\text{m}$ , lat. 6–7  $\mu\text{m}$ ").

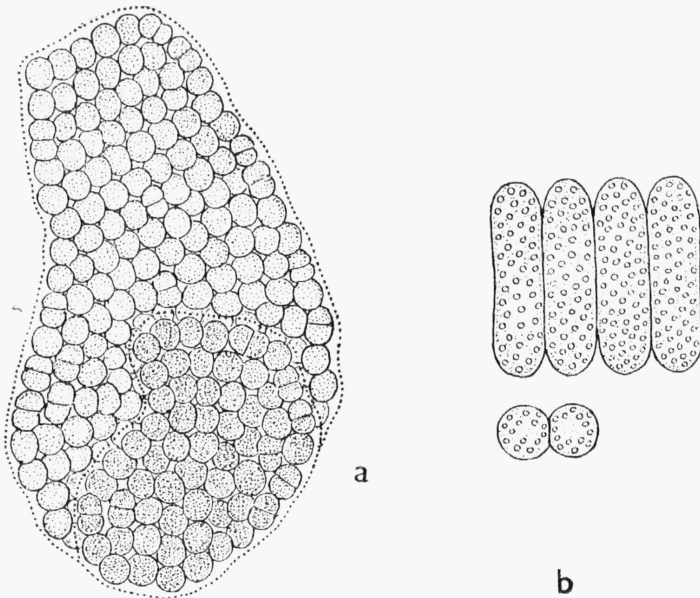


Fig. 1. — *Microcrocis dietelii* P. RICHTER. — a: one layered colony with a folded border. Cells embedded in a colourless mucilage; b: four cylindrical cells in longitudinal and cross section (below). Cell contents are granular. — Orig.

The type locality of RICHTER (1892, leg. P. DIETEL 1891) is a ditch near Leipzig, with *Spirogyra* and *Oscillatoria*. ELENKIN (1938 : 71) reports some localities in the Soviet Union, but he uses the name *Holopedium geminata* LAGERH., in spite of the fact that ELENKIN's figure 14 is a picture of *Microcrocis dietelii* taken from RICHTER. Under the same designation the alga is reported by BROOK (1957) in an eutrophic loch in Perthshire (Scotland), growing among the bloom of *Oscillatoria*. I myself have observed the alga twice: in a ditch near Prague in Central Bohemia and in an eutrophic fishpond Smyslov near the Hydrobiological Field Station Blatná in South Bohemia. My description and drawing match exactly those of RICHTER (1892). The alga occurred here in the community of algae growing on *Potamogeton pectinatus* L. but the colonies were not attached by any means to the plant bodies. According to the terminology of BEHRE (comp. FOLT 1971) such a community of microscopic plants is termed a metaphyton.

LAGERHEIM (1893) synonymised *Microcrocis dietelii* RICHTER with *Holopedium geminatum* (LAGERH.) LAGERH., but its iconotype (LAGERHEIM 1883: Fig. 1 F/9, 10) is not identical with the drawing of RICHTER (1893 : 74), as the latter author emphasized (i.e. : 74–75). In fact LAGERHEIM's alga has not been rediscovered since 1883 but a somewhat similar description and drawing

were made by BUELL (1938 : 385—386) under the name *Holopedia pulchella* BUELL. The author gives no differences between this alga and *Holopedium geminatum* but the only one that could be observed from his data is the size. *H. pulchella* BUELL is very small ( $3.4 \mu\text{m} \times 3.5 \mu\text{m}$ ).

*Holopedium obvolutum* TIFFANY 1934 (TIFFANY 1934 : 19, Fig. 15/373) is morphologically identical with *Microcrocis dietelii* RICHTER, only the dimensions are smaller ( $3.5 \times 7 \mu\text{m}$ ). The name represents at the most the basionym for *Microcrocis dietelii* P. RICHTER f. *obvoluta* (TIFFANY) FOTT comb. n.

*Holopedia granulata* SKUJA 1948 differs from *M. dietelii* P. RICHTER only in the polyhedral cross section of cells in colony and in the granular contents of the protoplast. As the occurrence of granules in cyanophycean cells is no taxonomic criterion, SKUJA's species should be made synonymous with *M. dietelii* RICHTER.

*Holopedia bella* BECK 1929 [syn. *Beckia bella* (BECK) ELENKIN 1938] and *Holopedia irregularis* LAGERHEIM need to be rediscovered and confirmed. Until that time they have to be considered as doubtful. *Microcrocis sabulicola* (LAGERH.) GETTLER 1942 is a marine species reported from Sweden and from France (BOURRELLY 1957). Recently it has been observed by KOMÁREK (personal communication). Until now the only revised and rediscovered species is the type species *Microcrocis dietelii* P. RICHTER 1892.

## Souhrn

Z několika druhů rodu *Microcrocis* P. RICHTER 1892 (syn. *Holopedium* LAGERHEIM 1893) jedině nový druh rodu *M. dietelii* P. RICHTER 1892 je spolehlivě znám na základě typového materiálu, RICHTEROVY kresby a mého pozorování na českém materiálu. Sběry z pobřežních porostů rdestu *Potamogeton pectinatus* L. rybníku Smyslov u Blatné a z bažinaté strouhy v Emilově dolu u Řevničova jsou první nálezy druhu v Československu, protože sinice není uváděna ani v HANSBURGOVĚ Prodromu (1892) ani v soupisu moravsko-slezských sinic a řas (LHOTSKÝ et ROSA 1955). Sinice je dále známa z Německa, Švédska, Francie, USA a Sovětského svazu.

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## Studies on the Sex Chromatin in Various Tissues of the Vegetative Organs of *Rumex acetosa* L.

Studium pohlavního chromatinu v různých pletivech vegetativních orgánů *Rumex acetosa* L.

Vladimír Váňa

VÁŇA V. (1972): Studies on the sex chromatin in various tissues of the vegetative organs of *Rumex acetosa* L. — Preslia, Praha, 44 : 100—111. — The sex chromatin of *R. acetosa* L. is produced by the heterochromatin of two Y chromosomes present in the diploid set of the male plant. In interphase nuclei it can be observed either as a chromocentre, as a persisting chromosome, or as a transitional form between these two types. The incidence of nuclei with a different number of persisting bodies was studied in the tissues of the stem, leaf and elongation zone of the root and the position of persisting bodies in the nuclei was evaluated. — Department of Genetics, Microbiology and Biophysics, Caroline University of Prague, Viničná 5, Praha 2, Czechoslovakia.

### Introduction

In the last 20 years, and especially after the discovery of sexual dimorphism in interphase nuclei of somatic mammalian cells (BARR et BERTRAM 1949), considerable progress has been made in studies of differences of interphase nuclei in both sexes of the same species. As regards plants, the first studies of sexual dimorphism of interphase nuclei were performed on *Rumex acetosa* L. (SHIMIZU 1961, PAZOURKOVÁ 1964). All earlier papers (HEITZ 1928, SHIMOTOMAI et KOYAMA 1932 a.o.) described the presence of morphologically not clearly differentiated chromocentres in the interphase nuclei of the male and female gametophytes of Bryophytes. PAZOURKOVÁ (1964) observed that the interphase nuclei of the male plant contained one or several chromocentres of identical staining properties as those of the sex chromatin of mammals. These chromocentres could not be identified in the female plant. It was assumed that these chromocentres are formed by heterochromatin of two Y chromosomes present in the diploid set of chromosomes of the male plant. This hypothesis was confirmed by the results of studies on the localization of the heterochromatic segments in chromosomes of this species (VÁŇA ined.). Similar observations have been made in the closely related species *Rumex thyrsiflorus* FINGERH. (ŽUK 1969a, 1969b).\*)

PAZOURKOVÁ (1964) found interphase nuclei with a varying number of chromocentres similar to sex chromatin in the differentiating tissues of the root and also in the differentiated tissues of the stem and leaf. In addition, she found also nuclei in which these structures were absent. She described persisting chromosomes from both types of tissues. The present study was performed in order to obtain information on the incidence of nuclei containing different numbers of these persisting bodies in various tissues of the vegetative organs of the male plant of *Rumex acetosa* L. Using a modification of

\*) Recently M. KURITA et Y. KURAKI published a series of cytogenetic studies on *Rumex acetosa* L. These papers arrived, alas, too late to be considered by the present author.