

Kolajipulno

Stela

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DINARELLA KOCHI N. GEN., N. SP.  
(DASYCLADACEAE) FROM THE LIAS OF THE  
VELEBIT MOUNTAIN

*With 2 plates and 1 text-figure*

A new calcareous alga from the Lower Lias, *Dinarella kochi* n. gen., n. sp. is described. Its main characteristics concern the structure of secondary branches, which show incomplete division.

In recent years intense geological investigations of the Velebit mountain have been carried out, in order to produce a geologic map of the region. On this occasion a rather rich microfossil association was found in the Lower Liassic sediments (Nikler L., Sokač, B. & Ivanović A., 1964; Sokač B. & Nikler L., 1966; Nikler L. & Sokač B., 1968). Besides the already known or earlier described dasyclad algae, a new form has been noticed, being represented, unfortunately, mainly by strongly recrystallized and partially destroyed specimens, but with the pores and branches apparently similar to a *Macroporella*. After rather a long period of systematic collection of Lower Liassic samples, a sample has been found containing a larger amount of better preserved specimens of that form, which enabled us to establish a new genus and species of the family Dasycladaceae, *Dinarella kochi* n. gen., n. sp.

Thin-sections with the holotype and other material are deposited in the Institute of Geology, Zagreb.

SYSTEMATIC DESCRIPTION

Family Dasycladaceae

Tribus Diploporeae? Pia 1927

Genus *Dinarella* n. gen.

The main characteristics of this new genus comprise the structure, the shape and the position of branches, which are the most distinctive features, differentiating the new genus from the already published genera.

The calcareous wall is of a cylindrical shape. The branches, arranged in whorls, issue from the cylindrical main stem. Each whorl contains primary and secondary branches. Primary branches, narrowed at their basis, thicken at their distal end, assuming generally a club-like shape. Secondary branches grow out from the extremities of the primary branches. The specific shape of secondary branches is the most distinctive feature of the genus. The secondary branches, being rather wide from their basis onwards, show in their external part an incompletely expressed division into three to four parts, which are not very clearly distinguishable indeed, but which could be considered, however as initial, orimentary secondary branches. For the time being, the genus is monospecific, represented by the species *Dinarella kochi* n. gen., n. sp., the possibility of a later enlargement of the generic characteristics, based upon the findings of further new species, remaining open.

The name given to the genus is after the Dinaric Mountains, where this alga was found.

*Dinarella kochi* n. sp.

Plate I-II

**Origin of the name:** The species was named after Ferdo Koch, the Croatian researcher of the Velebit mountain.

**Type-locality:** NW from Velika Basača (NW from »Kubus« near Baške Oštarije), in the central part of the Velebit mountain.

**Type stratum:** Recrystallized biocalcareonites of the Lower Lias.

**Holotype:** Oblique section of the specimen figured in pl. I, fig. 1, thin-slide Go-8714/8.

**Diagnosis:** A comparatively small calcareous alga with a cylindrical thallus. Branches arranged in whorls are superimposed on each other. Primary and secondary branches can be clearly distinguished. Primary branches are club-shaped, whereas the secondary ones, considerably widened from their base onward, show partial division at their extremities.

**Description:** A cylindrical calcareous skeleton has probably a rounded termination. Slight bending of the thallus could be noticed in a few specimens. A comparatively thick calcareous wrapping, if completely preserved, occupies something more than 2/3 of the total diameter. The inner edge of the calcareous skeleton is sharp and clearly outlined (pl. I, fig. 1), or, more rarely, has havelly distinguishable ring-like recesses, which correspond with the bases of the primary branches (pl. II, fig. 2).

The branches, consisting of two parts, are arranged in successive whorls, leaving comparatively large space between each other. Each whorl contains a number of primary branches, which each bear a single

secondary branch. Primary branches of the two consecutive whorls are situated above each other, i. e. they stay in vertical rows, superimposed on each other. Through a narrowed base, which corresponds with rather small pores, they are connected with the main stem, whereas they widen towards their extremities, assuming in general a club-like shape. These branches appear quite rough with a sharp edged calcite covering. They are situated obliquely to the axis of the main stem, at an angle of about  $45^{\circ}$ , and sometimes displaying a barely visible tendency to bend down (pl. I, fig. 1).



Text-fig. 1. The type of branches of the genus *Dinarella*, n. gen.

Sl. 1. Tip ogranka kod roda *Dinarella*

Drawn by (crtao) S. Marinčić

The secondary branches issue from the primary ones. They are considerably wide even at their base, and display a tendency to widen further (pl. I, fig. 1). Taken separately, each branch looks like a stemmed wine-glass, where the primary branch forms the stem, and the secondary one — the bowl-shaped widening. The main feature of the secondary branches is an incomplete division in their distal, i. e. extremity. In the transversal and tangential sections taken through terminal parts of the secondary branches, there can be seen up to four rough component parts, not rather clearly defined, divided from each other by initial grooves, being tightly connected in the middle, and not always clearly outlined at their edges (pl. I, fig. 1-2). Owing to that, they are embedded in an uninterrupted calcite cavening which results in the occurrence of very large pores in a section near to the surface of the thallus. The pores, which correspond with the widening of the secondary branches, may assume such a size near the surface that they nearly touch each other. The superimposed position of the primary branches may also occur in the secondary ones, it may be only partially retained, or it may be completely lost, assuming an irregular arrangement.

## Dimensions in mm:

Maximally observed length	7,5
Outer diameter (D)	1,67 – 1,85
Inner diameter (d)	0,52 – 0,74
Width of primary branches at the base	0,06
Maximum width of primary branches	0,17
Length of primary branches	0,29 – 0,37
Length of secondary branches	0,37
Distance between whorls (h)	0,29 – 0,37
Number of branches in a whorl (w)	12 – 16
Angle between primary branches and the axis of main stem ( $\alpha$ )	
Width of pores of the branches where they divide	0,06 – 0,11

Remarks: Because of the small number of measured specimens it is possible that the quoted dimensions may show greater variations, which must be taken into account in further findings.

*Similarities and differences:* The described species, owing to the general characteristics of the structure of the secondary branches, defines a new genus, which can be compared with some of the already known species in some sections, or even partially on the basis of some characteristics. In poorly preserved and recrystallized specimens an impression of undivided branches and a *Macroporella*-like structure can be obtained – owing to which, in such cases, it could be mistaken for a *Macroporella*. However, the presence of secondary branches distinguishes it sharply from *Macroporella*, and their incomplete division seems to relate, it to some extent, to the genus *Dissocladella*, i. e. the species *D. undulata* (Raineri). A similarity with this species exists also in the shape and the arrangement of the primary branches, though the dimensions are quite different. An obvious difference, however, appears in the secondary branches, in the species *D. undulata* a clearly expressed differentiation into 6 secondary branches exists, each of them giving rise to a separate pore on the surface of the thallus. A comparison with any other species with primary and secondary branches would be going too far, the main differences being so obvious that a description seems unnecessary.

*Stratigraphical position:* The species derives from grey, partly recrystallized limestones, in which a microfossil association characteristic of the Lower Lias has been found, consisting of following species: *Uragiella liassica* Le bouché & Lemoine, *Palaeodasycladus barrabei* Le bouché & Lemoine, *Petrascula heraki* Sokač & Nikler, *Petrascula illyrica* Sokač & Nikler. Consequently, the species belongs to a horizon which may be, in the investigated area, defined as Lower Lias.

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B. SOKAČ I L. NIKLER

DINARELLA KOCHI N. GEN., N. SP. (DASYCLADACEAE) IZ LIJASA VELEBITA

U djelomično prekrizaliranim vapnencima donjeg lijasa sjeverozapadno od Kubusa (zapadno od Baških Oštarija) nađena je vapnenačka alga koja je u prethodnim materijalima davala dojam pripadnosti rodu *Macroporella*.

U bolje očuvanim presjecima cilindričnog talusa utvrđeni su dvodjelni ogranci od kojih primarni kijačastog oblika nose po jedan prošireni sekundarni ogranak. Ogranci su smješteni u relativno razmaknute pršljene. Pojedinačno svaki sekundarni ogranak u svojoj vanjskoj polovini pokazuje nepotpuno cijepanje na četiri nerazdvojena dijela, kojih je kalcitni ovoj jedinstven. Ova karakteristika omogućila je da se izdvoji novi rod *Dinarella* za sada s jednom vrstom *D. kochi* n. sp.

Cjeloviti skelet ove vrste cilindričnog je oblika i kod nekih primjeraka ponešto savijen.

Dvodjelni ogranci smješteni su u relativno razmaknute pršljene koji sadrže 12-16 primarnih ogranaka kijačastog oblika. Primarni ogranci suženom bazom odvajaju se samostalnom porom malih dimenzija od matične stanice i stoje u superponirajućem položaju. U odnosu na os matične stanice stoje koso pod kutem približno 45°. Svaki primarni nosi po jedan sekundarni ogranak proširen od same baze s daljnjom tendencijom laganog širenja u distalnom dijelu. Za sekundarne ogranke značajno je u vanjskoj polovini nepotpuno cijepanje na 4 nejasno definirana nepravilna dijela odvojena embrio-

nalnim brazdama i međusobno tijesno vezana s jedinstvenim kalcitnim ovojem, koji tek kod pojedinih ogranaka vidljivo zadire u spomenute brazde. Superponirajući položaj pora može biti sačuvan i kod sekundarnih ogranaka, ali je ipak češće nepravilan.

Vrijednosti pojedinih elemenata dane su u prethodnom, engleskom tekstu s mogućnošću većeg variranja obzirom na mali broj mjerenih primjeraka.

Opisana vrsta, a time i rod kojega ona predstavlja izgledom i građom ogranaka izdvaja se od dosada poznatih. U slabo očuvanim presjecima dobiva se dojam nepodijeljenog ogranaka, pa ju je tada moguće zamijeniti s predstavnicima roda *Macroporella*. Naznačeno, ali nepotpuno cijepanje sekundarnih ogranaka samo je donekle približava rodu *Disocladella* odnosno vrsti *D. undulata* (Raineri), ali je srodnost isključena jasno diferenciranim sekundarnim ograncima kod roda *Disocladella*. U odnosu na druge vrste s primarnim i sekundarnim ograncima njezine specifične karakteristike isključuju potrebu usporedbe s ovima.

Uzorci s ovom vapnenačkom algom potječu iz donjolijskih naslaga lokaliteta sjeverozapadno od V. Busače (SZ od Kubusa u Velebitu).

Pripadnost donjem lijasu utvrđena je na susjednim lokalitetima u pružanju zone s ovom algom, gdje je nađeno više provodnih mikrofosila za donji lijas.

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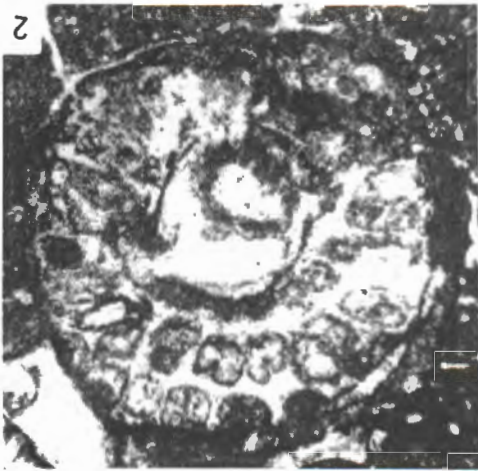
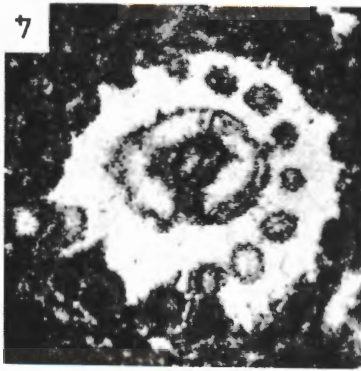
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PLATE - TABLA I

*Dinarella kochi* n. gen., n. sp.

1. Holotype (holotip). Oblique section (kosi presjek)  
Slide (izbrusak). GO - 8714/8 × 28,9
2. Slightly oblique transversal section (malo kosi poprečni presjek)  
Slide (izbrusak). GO - 8714/13 × 30,1
3. Oblique section (kosi presjek)  
Slide (izbrusak). GO - 8714/20 × 32,4
4. Slightly oblique transversal section (malo kosi poprečni presjek)  
Slide (izbrusak). GO - 8714/23 × 31,2

Foto: V. Matz



*Sohat* i *Nikler*: *Dinarella kochi* n. gen., n. sp.

PLATE - TABLA I

PLATE – TABLA II

*Dinarella kochi* n. gen., n. sp.

1. Oblique section (kosi presjek)  
Slide (izbrusak). GO – 8714/11. × 22,8
2. Longitudinal slightly tangential section (uzdužni malo tangencijalni presjek)  
Slide (izbrusak). GO – 8714/34. × 29,7
3. Oblique transversal section (poprečno-kosi presjek)  
Slide (izbrusak). GO – 8714/2. × 29,4
4. Slightly oblique transversal section (malo kosi poprečni presjek)  
Slide (izbrusak). GO – 8714/22. × 32,2

Foto: V. Matz



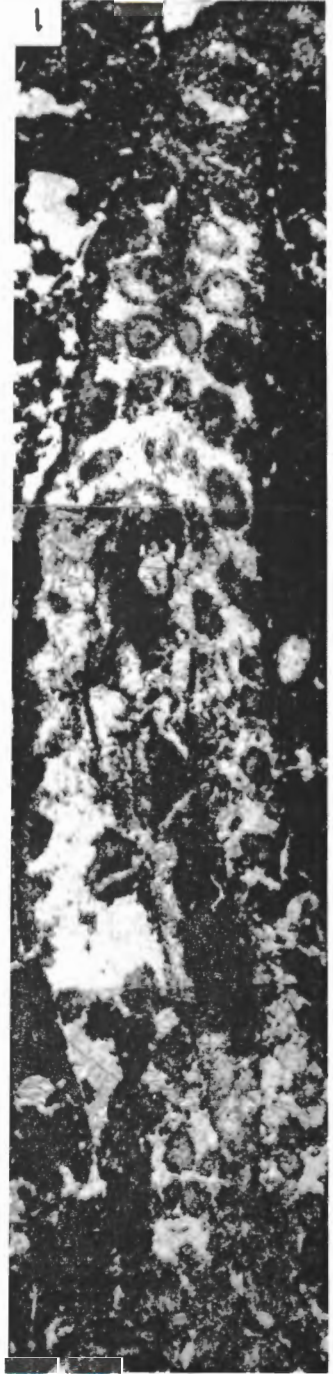
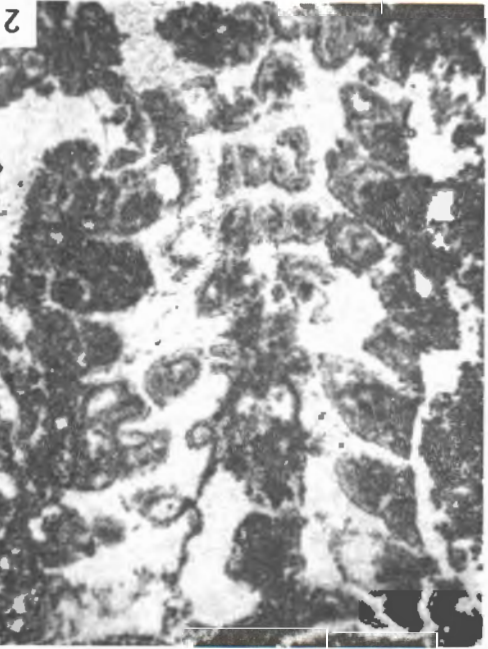
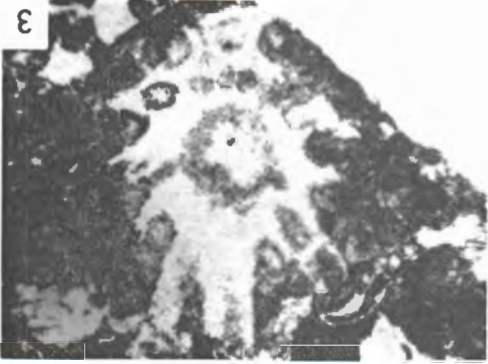
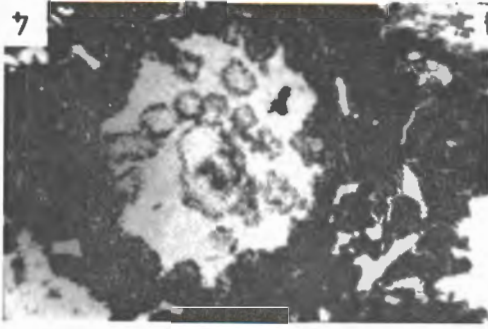


PLATE - TABLA II

Sokat & Nibler: *Dinarella kochi* n. gen., n. sp.