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Humiella teutae n. gen. n. sp. (Dasycladaceae) iz neokoma južne Hercegovine

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Opisana je nova vapnenačka alga *Humiella teutae* n. gen. n. sp. specifično građenog talusa predstavljenog tankom ovojnicom podjednake debljine u svim dijelovima biljke. Nalaz nove alge potječe iz najvišeg dijela neokoma južne Hercegovine (južno od Huma).

Phylum *Chlorophyta*
 Order *Dasycladales*
 Family *Dasycladaceae*
 Genus *Humiella* n. gen.

Derivatio nominis: Prema mjestu Hum južno od kojega je ova alga nađena.

Diagnosis: Rod *Humiella* predstavljen je algom specifično građenog skeleta, koji se primarno sastojao od tankog korastog plašta što je obavijao meke dijelove biljke. U takvoj ovojnici primarno ili sekundarno kalcificiranoj jasno je izdiferencirana aksijalna šupljina i nerazdijeljeni ogranci. Individualizirani ogranak izravni je distalni izlazak mekog tkiva iz aksijalne šupljine, koji je pred sobom izvlačio korasti plašt, čime je i uvjetovano formiranje ogranaka. Ogranci su smješteni u pršljene i predpostavlja se da će oblikom, veličinom i položajem u odnosu na uzdužnu os biljke varirati od vrste do vrste. Pojedinačni nalazi spora u prostoru aksijalne šupljine i šupljinama ogranaka ukazuju da su se ove razvijale na oba mjesta.

Tipični predstavnik roda je vrsta *Humiella teutae* prikazana na tab. I, fig. 1.

Humiella teutae n. sp.

Table I—II

Poriijeklo imena: prema ilirskoj kraljici Teuti.

Tipični lokalitet: U naselju Cerovac jugoistočno od stare željezničke stanice Hum (južna Hercegovina).

Starost: Slojevi biointrasparita s obiljem algalnog kršja iz najvišeg dijela neokoma.

Holotip: *Humiella teutae* n. gen. n sp. prikazan je uzdužnim presjekom tab. I, sl. 1, a utvrđena je u preparatu D-93.

Dijagnoza: Vrsta *Humiella teutae*, koliko je nama poznato jedini predstavnik roda karakterizirana je specifično građenim skeletom kojega čini cjelovita tanka korasta ovojnica u kojoj su jasno diferencirani ogranci i aksijalna šupljina. Ogranci su nepodijeljeni i smješteni su u pršljene pravilno razmaknute uzduž talusa. Svaki pršljen sastoji se od potpuno samostalnih ogranaka obavijenih istom korastom ovojnicom koja obavlja i aksijalnu šupljinu. Ogranci su kruškastog oblika ili je kod pojedinih primjeraka jasnije izražena drška i distalno napuhnuće.

Opis: Nova vrsta predstavljena je u obrađenom materijalu većim brojem različito orijentiranih presjeka koji omogućuju potpunu rekonstrukciju njezinih morfoloških karakteristika. Osobitost ove vrste što je i jedna od bitnih odlika roda sadržana je u građi skeleta. Promatrani presjeci (tab. I—II) pokazuju izrazito nježan skelet koji se ocrtava kao tanka nešto tamnija linija podjednake debljine u svim njegovim dijelovima. Već je predhodno spomenuto da je skelet predstavljen tankom ovojnicom za koju je neizvjesno da li je i primarno bila kalcificirana. Tamnija linija koja ocrtava skelet sastoji se iz kriptokristalastog kalcita na kojega se u pravilu s unutarnje strane veže uska zona sitnozrnog kalcita, često prisutna i s vanjske strane (tab. II, sl. 1). Unutarnje šupljine ogranaka kao i aksijalnu šupljinu ispunjava krupnozrni kalcit, ili su u pojedinim šupljinama ogranaka razvijeni monokristali (tab. II, sl. 1). Iz ovog rasporeda rekristalizacije čini se da ostaje otvoreno pitanje primarne kalcifikacije stijenke.

Dužinom cilindričnog talusa u pravilnim razmacima kroz široke pore izvlači se iz aksijalne šupljine meko tkivo u potpuno samostalne ogranke obavijene ovojnicom iste debljine (tab. I, sl. 1, tab. II, sl. 1). Aksijalna šupljina blago je valovita, neznatno sužena u intervalima između ogranaka i slabo proširena u ravnini pršljena (tab. I, sl. 1). Iz ovoga proizlazi i različiti odnos unutarnjeg i vanjskog dijametra ovisno o mjestu ravnine presjeka.

Nepodijeljeni i u potpunosti individualizirani ogranci u pravilnim razmacima grupirani su u pršljene. Ogranak iz matične stanice izlazi relativno prostranom porom u kratki držak koji se ubrzo lijevkasto širi u loptasto zadebljanje pa cijeli ogranak ima oblik kruške, (tab. I, sl. 1, tab. II, sl. 1). U tangencijalnom presjeku, ovisno o njegovoj dubini, ogranaci se ocrtavaju većim ili manjim i najčešće gotovo pravilnim kružnicama. U pojedinim slučajevima kada dolazi do stiskanja ogranaka susjednih pršljena moguće su i njihove manje deformacije (tab. II, sl. 6). Uz vanjsku površinu zbog jakog distalnog napuhnuća ogranci susjednih pršljena često su u međusobnom kontaktu, ali jasno odjeljeni svojim ovojnicama. U toj vanjskoj zoni pojedini susjedni ogranci mogu se naći u naizmjeničnom rasporedu, što se međutim ne može uzeti kao pravilnost.

Rijetko očuvane spore zapažene su u aksijalnoj šupljini kao i u šupljinama ogranaka, pa je vjerojatno da su se tu i razvijale.

Dimenzije u mm:

Vanjski dijametar	2,22—3,65
Unutarnji dijametar	0,37—0,90
Dužina ogranaka	0,90—1,37
Dijametar distalnog dijela ogranka	0,48—0,93
Dijametar pore na izlazu ogranka	0,08—0,10
Udaljenost pršljena	0,65—0,74
Broj ogranaka u pršljenju	0—13

Sličnost i razlike: Novo opisani rod i njegova za sada jedina vrsta *Humiella teutae* pokazuju neke sličnosti s rodom *Actinoporella* i nekim vrstama roda *Clypeina*. Ove sličnosti prisutne su samo u generalnom pogledu kao što je to na primjer veća ili manja individualizacija ogranaka unutar jednog pršljena, kao i načinu rasporeda pršljena duž talusa. Međutim, unatoč ovih sličnosti, očite su i razlike izražene građom skeleta koji je kod *Humiella teutae* predstavljen jedinstvenom i u svim dijelovima podjednako debelom ovojnicom, što je različito od jače naglašene kalcifikacije kod prije spomenutih rodova. Razlike se očituju i kruškastim oblikom ogranaka te njihovoj potpunoj individualizaciji tj. bez ikakvog kontakta susjednih ogranaka istog pršljena kod *Humiella teutae*, što je kod rodova *Actinoporella* i *Clypeina* isključeno.

Stratigrafski položaj: Nalaz opisane vrste potječe iz najvišeg meokoma — gornjeg otriva, a utvrđen je u uzorku s brojnim algalnim kršjem od kojega se jedan dio može determinirati kao ostaci vrste *Clypeina? solkani* Conrad & Radoičić. S obzirom da je uzorak s ovom algom prikupljen prilikom snimanja kontinuiranog stupa kroz donju kredu određen je njegov položaj neposredno iznad nalaza vrste *Orbitolinopsis capuensis* (De Castro) i oko 15 m ispod prvih nalaza *Salpingoporella melitae* Radoičić. Kako prvim nalazima *S. melitae* Radoičić prethodi interval kratkotrajnih izronjavanja kojima dio naslaga može biti reduciran, a životni vijek ove alge na ovom lokalitetu prekinut tek će novim nalazima biti moguće utvrditi njezin vertikalni raspon.

LITERATURA

- Bassoullet, J. P., Bernier, P., Conrad, M. A., Deloffre, R. & Jaffredo, M. (1978): Les Algues Dasycladales du Jurassique et du Cretace. *Geobios mem. spec.* 2, 330 p., 40 pl., Lyon.
- Pia, J. (1920): Die Siphoneae verticillatae vom Karbon bis zur Kreide. *Abh. zool.-botan. Ges.*, 11/2, 263 p., 25 fig., 8 pl., Wien.

**Humiella teutae n. gen. n. sp. (Dasycladaceae)
from the Neocomian of Southern Herzegovina**

B. Sokač and I. Velić

A new calcareous alga, *Humiella teutae* n. gen. n. sp. is described. It has a specifically built thallus appearing as a thin envelope of uniform thickness in all parts of the plant. The new alga was found in the highest part of the Neocomian of Southern Herzegovina (to the south of Hum).

Phylum *Chlorophyta*
Order *Dasycladales*
Family *Dasycladaceae*
Genus *Humiella* n. gen.

Origin of the name: After the place of Hum, south of which the alga was found.

Diagnosis: The genus *Humiella* is represented by an alga of a specifically built skeleton, which primarily consisted of a thin corticular envelope enwrapping the soft parts of the plant. The axial cavity and undivided branches are clearly distinguishable in that primarily or secondarily calcified envelope. The individualized branch is a direct distal outlet of the soft tissue, from the axial cavity. The corticular envelope was pushed out in front of the branch, which facilitated the formation of the branches. The branches are arranged in whorls, and it is assumed that they vary from one species to another in shape, size, and position in relation to the longitudinal axis of the plant.

Single finds of spores in the region of the axial cavity and the cavities of the branches suggest that they developed in both places.

A typical representative of the genus is the species *Humiella teutae* shown in Plate I, Fig. 1.

Humiella teutae n. sp.
Plates I—II

Origin of the name: after the Illyrian queen Teuta.

Type locality: Cerovac, a place southeast of the old railway station of Hum (Southern Herzegovina).

Age: Biointrasparite deposits abounding in algal debris from the highest stratum of the Neocomian.

Holotype: *Humiella teutae* n. gen. n. sp. is shown in the longitudinal section in Plate I, Fig. 1, and established in the thin section D-93.

Diagnosis: The species *Humiella teutae*, to the best of our knowledge the only representative of the genus, is characterized by a specifically built skeleton consisting of a comprehensive thin corticular envelope with clearly differentiated branches and axial cavity. The branches are undivided and arranged in whorls uniformly spaced along the thallus. Each whorl consists of completely independent branches enwrapped by the same corticular envelope which also wraps the axial cavity. The branches are pear-shaped, but in some samples the neck and the distal swelling are more clearly marked.

Description: The new species is represented in the material under investigation by a considerable number of variously arranged sections which allow a complete reconstruction of its morphological characteristics. A special feature of this species is that one of the chief characteristics of the genus is embodied in the structure of the skeleton. The sections under observation (Plates I—II) show a very delicate skeleton, outlined as a thin, slightly darker line of equal thickness in all its parts. It has been mentioned above that the skeleton is represented by a thin envelope, and it is uncertain whether it was primarily calcified. The darker line delineating the skeleton consists of kryptocrystalline calcite, to which a narrow zone of finely grained calcite is bound, as a rule from the inner side, often present also on the

outer side (Plate II, Fig. 1). The inner cavities of the branches and the axial cavity are filled with coarsely grained calcite, or, in some branch cavities, monocrystals have developed (Plate II, Fig. 1). This arrangement of recrystallization leaves open the question of primary calcification of the wall.

Along the length of the cylindrical thallus regularly spaced soft tissue is drawn out from the axial cavity into completely independent branches enwrapped by the envelope of equal thickness (Plate I, Fig. 1, Plate II, Fig. 1). The axial cavity is gently undulated, slightly straitened in the intervals between the branches and a little widened at the level of the whorls (Plate I, Fig. 1). This results in the different ratio of the inner and the outer diameters, depending on the place of the level of the section.

The undivided and completely individualized branches are grouped into uniformly spaced whorls. The branch comes out from the parent cell through a comparatively spacious spore into a short neck, which soon widens out funnel-like into a spherical thickening so that the whole branch has the shape of a pear (Plate I, Fig. 1, Plate II, Fig. 1). In the tangential section, depending on its depth, the branches are delineated by larger or smaller, most often almost regular circles. In certain cases, where the branches of the neighbouring whorls are pressed together, minor deformities are likely to occur (Plate II, Fig. 6). Owing to the considerable distal swelling, the branches of the neighbouring whorls often touch one another at the outer surface, but they remain clearly separated by their envelopes. Single neighbouring branches in that outer zone can be found in alternating arrangement, which, however, cannot be considered to occur as a rule.

Rarely preserved spores have been noticed both in the axial cavity and in the branch cavities, and it is probable that they developed there.

Dimensions in mm:

Outer diameter	2.22—3.65
Inner diameter	0.37—0.90
Length of branches	0.90—1.37
Diameter of the distal part of branch	0.48—0.93
Diameter of the pore at branch outlet	0.08—0.10
Distance between the whorls	0.65—0.74
Number of branches in a whorl	0—13

Similarities and differences: The described new genus and its only species known so far, *Humiella teutae*, show certain similarities with the genus *Actinoporella* and some species of the genus *Clypeina*. The similarities exist only in general terms, as for instance in greater or lesser individualization of branches within a whorl, and in the way the whorls are arranged along the thallus. However, in spite of these similarities, differences are obvious, and they are revealed in the structure of the skeleton, which is shown in *Humiella teutae* by a unique envelope equally thick in all its parts. This is different from the more prominent calcification in the genera mentioned above. The differences are also manifested by the pear-shaped branches and their complete individualization, i. e. there is no contact between the neighbouring branches of the same whorl in *Humiella teutae*, a fact ruled out in the genera *Actinoporella* and *Clypeina*.

Stratigraphic position: The species described was found in the top Neocomian — Upper Hauterian, and was determined in the sample containing abundant algal debris, part of which may be determined as remains of the species *Clypeina* ? *sol-kani* Conrad and Radoičić. In view of the fact that the sample containing this alga was taken when a continued column through the Lower Cretaceous was collected, its position has been determined as immediately above the first of the species *Orbitolinopsis capuensis* (De Castro) and about 15 m below the first finds of *Salpingoporella melitae* Radoičić. Since the first finds of *S. melitae* Radoičić were preceded by an interval of short-time emersions, a part of whose strata could have been reduced and the life time of this alga disrupted in this locality, new finds will be necessary to allow the determination of its vertical range.

PLATE — TABLA I

1—6 *Humiella teutae* n. gen. n. sp.

1. Holotype. Longitudinal-tangential section (uzdužno-tangencijalni presjek);
x 12
- 2—3. Oblique sections (kosi presjeci); x 13,5
4. Tangential section (tangencijalni presjek); x 17,1
5. Cross section (poprečni presjek); x 16,2
6. Oblique section (kosi presjek); x 14

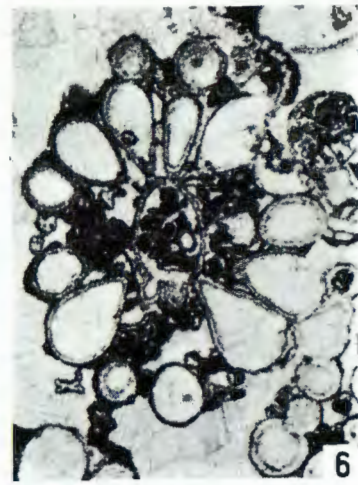
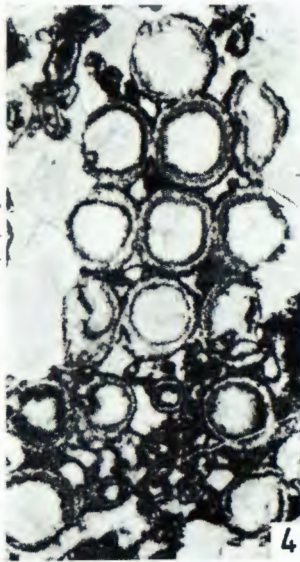
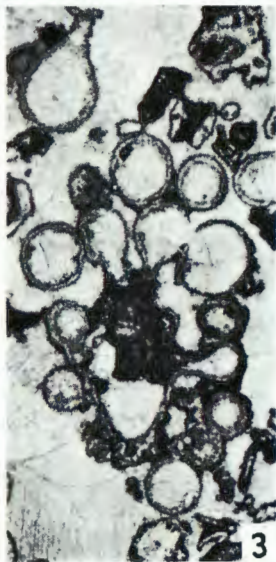
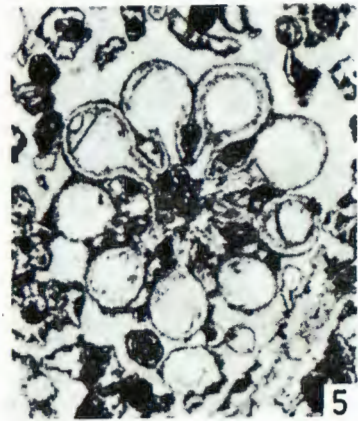
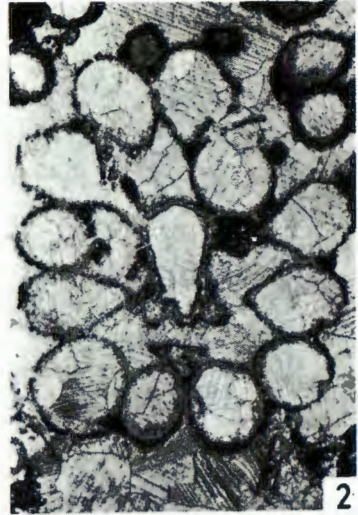
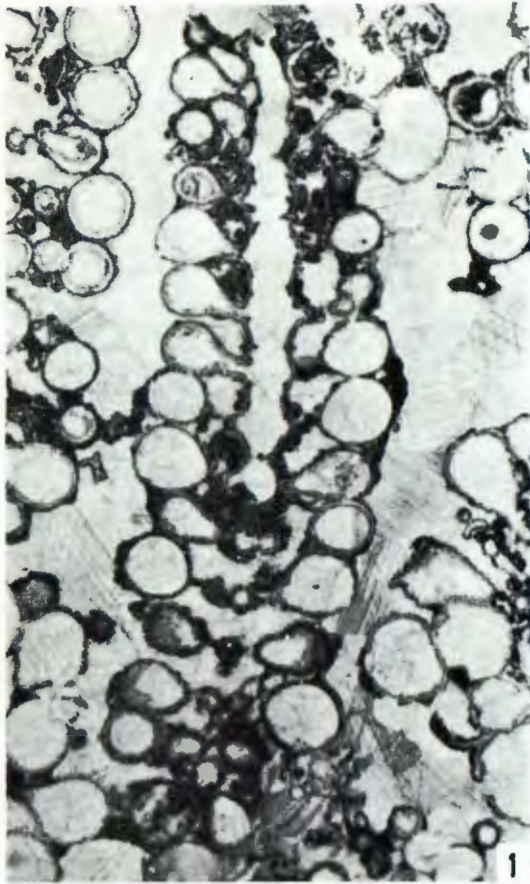


PLATE — TABLA II

1—9 *Humiella teutae* n. gen. n. sp.

1. Longitudinal section through a part of the thalus (uzdužni presjek kroz dio talusa); x 32,2
- 2, 5, 8—9. Oblique sections (kosi presjeci); 2, x 16,2; 5, x 10; 8, x 12,6; 9, x 9,5.
- 3—4, 6. Tangential sections (tangencijalni presjeci); 3, x 9; 4, 6, x 13,5
7. Cross section (poprečni presjek); x 8,5

