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Pseudorothpletzella schmidi n. gen., n. sp.: A New Microencruster incertae sedis from Late Jurassic Platform Fore-reefal Microframeworks of the Plassen Carbonate Platform (Northern Calcareous Alps, Austria) and the Albanides

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8 Text-Figures, 1 Plate

Albanien
Oberösterreich
Albaniden
Nördliche Kalkalpen
Oberjura
Mikroframework
Mikroinkrustierer

Österreichische Karte 1 : 50.000
Blatt 96

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Pseudorothpletzella schmidi n. gen., n. sp.: Ein neuer Mikroinkrustierer incertae sedis aus Ober-Jura Plattformrand-/Vorriff-Mikroframeworks der Plassen Karbonatplattform (Nördliche Kalkalpen, Österreich) und der Albaniden

Zusammenfassung

In der oberjurassisch bis unterkretazischen Plattform- bis Vorriff-Fazies der alpinen Plassen Karbonatplattform treten Mikroframeworks auf, die insbesondere aus einer diversen Vergesellschaftung von Mikroinkrustierern und synsedimentären Zementkrusten bestehen. Neben gut bekannten Taxa wie z.B. *Koskinobullina* CHERCHI & SCHROEDER, 1979, *„Tubiphytes"* MASLOV, 1956, *Iberopora* GRANIER & BERTHOU, 2002 oder *Radiomura* SENOWBARI-DARYAN & SCHÄFER, 1979 wurde ein neuer Mikroinkrustierer unsicherer systematischer Stellung entdeckt, der als *Pseudorothpletzella schmidi* n. gen., n. sp. beschrieben wird. Dieses neue Taxon ist jedoch nur untergeordnet am Aufbau dieser Mikroframeworks beteiligt. Es besteht aus subparallelen Lagen und weist Ähnlichkeiten zu der paläozoischen Gattung *Rothpletzella* WOOD, 1948 auf. Das Taxon aus dem Ober-Jura zeigt jedoch keine sich dichotom verzweigenden Filamente und die Lagen keilen lateral schnell aus. Die spätjurassische Assoziation von *Pseudorothpletzella* n. gen. mit *Koskinobullina* lässt sich mit dem mittel-bis spätpaläozoischen Konsortium von *Rothpletzella* WOOD 1948 und *Wetheredella* WOOD, 1948 vergleichen. In beiden Fällen umwachsen *Pseudorothpletzella* n. gen. und *Rothpletzella* einzelne Individuen von *Koskinobullina* bzw. *Wetheredella*, was als Biomuration interpretiert wird. Eine weitere Analogie ist das Vorkommen beider Assoziationen in mikrobolithischen Boundstones des Vorriff- bzw. oberen Hang-Bereichs. Die vorliegende Untersuchung stellt einen weiteren Beitrag zur mikropaläontologischen und mikrofaziellen Charakterisierung der Ablagerungen der alpinen oberjurassischen Plattformrand-Fazies und ihren Wechselwirkungen mit den angrenzenden Beckenbereichen dar.

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Abstract

The Late Jurassic to Early Cretaceous platform margin to fore-reef facies of the Alpine Plassen carbonate platform contains microframeworks consisting of a diverse association of microencrusters and synsedimentary cement crusts. Besides well known taxa, e.g. *Koskinobullina* CHERCHI & SCHROEDER, 1979, *„Tubiphytes"* MASLOV, 1956, *Iberopora* GRANIER & BERTHOU, 2002 or *Radiomura* SENOWBARI-DARYAN & SCHÄFER, 1979, a new microencruster incertae sedis was detected and is here described as *Pseudorothpletzella schmidi* n. gen., n. sp. This new taxon, however, is only a minor constituent of these microframeworks. Composed of subparallel sheets *Pseudorothpletzella schmidi* n. gen., n. sp. shows affinities to the Palaeozoic genus *Rothpletzella* WOOD, 1948. The Late Jurassic taxon, however, does not show dichotomously branching threads and the sheets wedge out laterally quickly. The Late Jurassic association *Pseudorothpletzella* n. gen. with *Koskinobullina* CHERCHI & SCHROEDER,, 1979 can be compared with the Middle to Late Paleozoic consortium *Rothpletzella* WOOD, 1948 and *Wetheredella* WOOD, 1948. In both cases, the masses of *Pseudorothpletzella* n. gen. and *Rothpletzella* incorporate individual specimens of *Koskinobullina* or *Wetheredella* interpreted as biomuration. Another analogy is the occurrence of both couplets in fore-reefal microbolithic boundstones. The present study represents a further contribution to the micropalaeontological and microfacial characterization of the Alpine Late Jurassic platform margin deposits and their interplay with adjacent basinal deposits.

1. Introduction

The Late Jurassic to Early Cretaceous (Kimmeridgian to Early Berriasian) Plassen carbonate platform of the Northern Calcareous Alps comprises two reefal intervals (SCHLAGINTWEIT et al., 2003, 2005). The first one developed during the shallowing-upwards evolution from basinal lithologies and is of Late Kimmeridgian age, the second one evolved around the Jurassic/Cretaceous boundary before the final Berriasian drowning (GAWLICK & SCHLAGINTWEIT, 2006). As there were several shallow water areas separating deeper water realms from each other („radiolaritic basins"), different facies varieties of the former platform margins can be distinguished such as pure ooidal shoals, high-energetic limestones with abundant *Labyrinthina mirabilis* WEYNSCHENK, 1951 („Labyrinthina shoals"), coral debris limestones (rudstones) or mixed coral-stromatoporoid limestones.

Recently, a characteristic microfacies of cement-supported microframeworks with a diverse association of microencrusters was reported from several localities, interpreted as a small rim occurring at the fore-reefal/upper slope zone (SCHLAGINTWEIT & GAWLICK, 2007). The distribution of the afore-mentioned different lithofacies, characterizing individual existing shallow water areas in the Northern Calcareous Alps is not fully understood at the moment. The existing differences also influence the occurrence of resediments (e.g. Barmstein Limestones, breccias of the Sillenkopf Formation, see MISSONI et al. 2001; GAWLICK et al. 2005 for details) in the basinal areas, e.g. distribution and composition. The cement-supported boundstones were also detected in the Mirdita zone (Albania) interpreted as characterizing steeply bordered platforms with assumed by-pass margin.

In the framework of recent thin-section analysis we observed a characteristic microencruster described here as *Pseudorothpletztella schmidi* n. gen., n. sp. This new taxon was detected in several localities of the Northern Calcareous Alps and also in the Mirdita Zone of Albania.

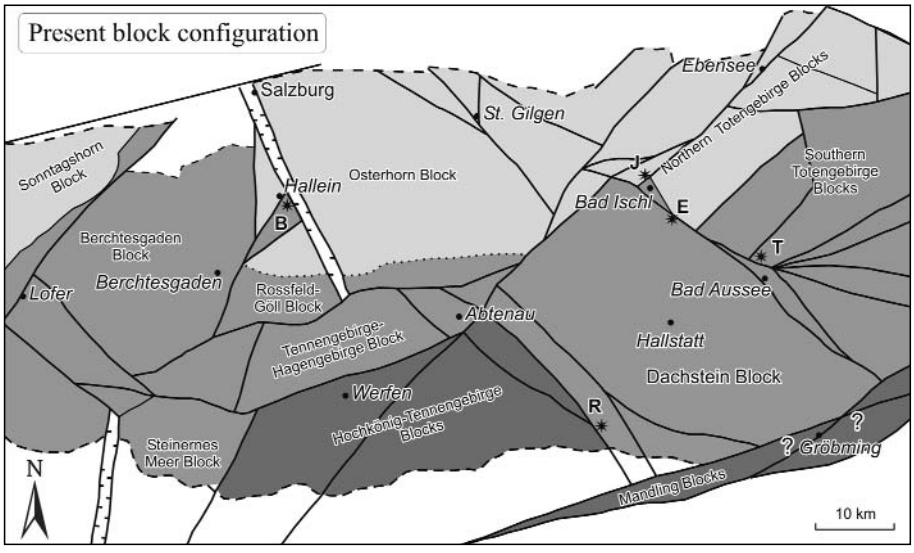
2. Geological Setting

The new taxon was found at Mt. Jainzen, Mt. Trisselwand and Mt. Rettenstein in autochthonous platform carbonates and resedimented in Barmstein Limestones of the Mts. Barmsteine and Mt. Ewige Wand (Text-Fig. 1). The choice of the Ewige Wand as type-locality is a result of the good preservation of the morphological details of specimens and not due to abundances or other criteria. Obviously at all localities indicated, the new taxon is extremely rare as our material was collected during several years of fieldwork and the investigation of several thousands of thin-sections.

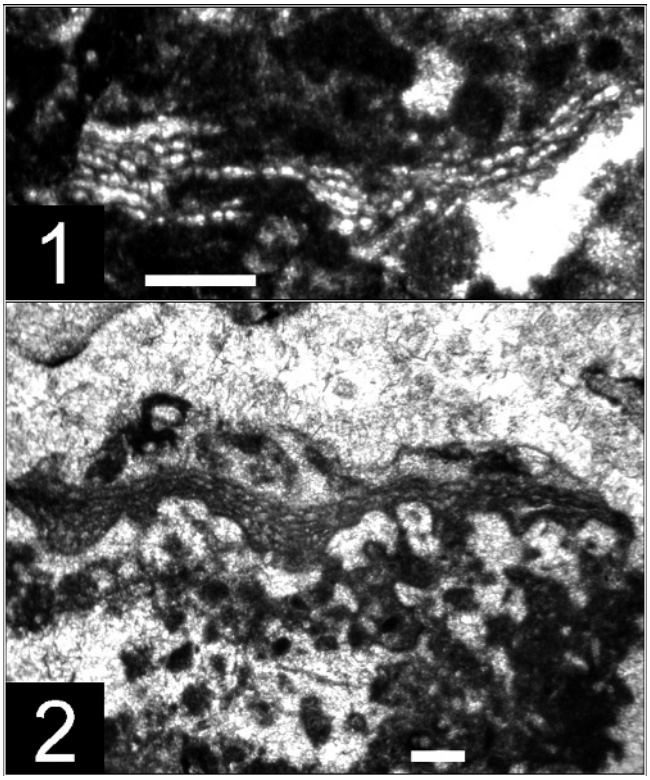
2.1. Occurrences in the Barmstein Limestone

Mts. Barmsteine

The type-locality of the Barmstein Limestone (Late Tithonian to Early Berriasian), which is intercalated in the micritic basinal limestones of the Oberalm Formation, is situated northwest of Hallein in the Salzburg Calcareous Alps. The type-locality is the "Kleiner Barmstein" and the "Großer Barmstein" close the German/Austrian border and was described in detail by STEIGER (1981, 1992) and more recently by GAWLICK et al. (2005). *Pseudorothpletzella schmidi* n. gen., n. sp. was found in one clast of thin-section B-58 (GAWLICK et al., 2005: Fig. 5 for details). The detection of just one specimen within more than 300 thin-sections again shows the general rareness of the new taxon. At the Barmsteine, however, this rareness has also secondary reasons, because the clast spectrum is dominated by components from closed lagoonal facies where the new taxon has as yet not been observed in the Northern Calcareous Alps.



Text-Fig. 1.
Simplified tectonic map of the middle sector of the Northern Calcareous Alps (after FRISCH & GAWLICK, 2003) with the occurrences of *Pseudorothpletzella schmidi* n. gen., n. sp.
B = Barmsteine near Hallein; E = Ewige Wand near Bad Goisern; J = Jainzen near Bad Ischl; T = Trisselwand near Altaussee; R = Rettenstein near Filzmoos.



Text.-Fig. 2.
Pseudorothpletzella schmidi n. gen., n. sp. from the Barmsteine, sample B-58 (1) and from the Plassen carbonate platform of Mt. Rettenstein, sample Rö-172 (2).
Scale bar for both = 0.2 mm.

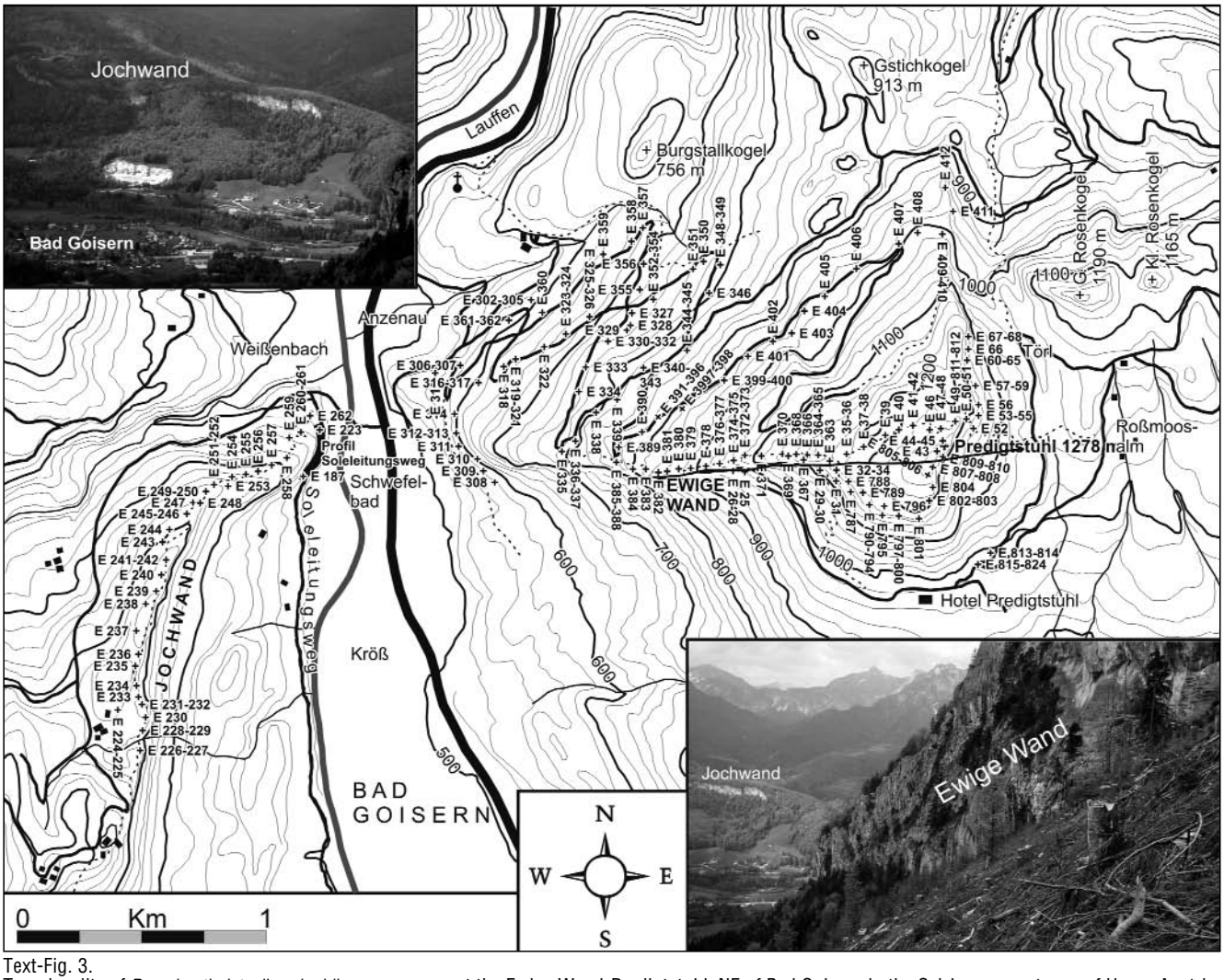
Mt. Ewige Wand (Text-Fig. 4/1)

Mt. Ewige Wand is a steep mountain wall extending for more than 1 km in E–W direction at the western side of the Predigtstuhl (1278 m) north of Bad Goisern in the central Salzkammergut area (Text-Fig. 4/1). It is composed of resediments of the Plassen carbonate platform very similar to the Barmstein Limestone. *Pseudorothpletzella schmidi* n. gen., n. sp. was detected only in one thin-section (E-815). The mass-flow breccias and calciturbidites are intercalated in calpionellid-bearing limestones. Late Tithonian is evidenced by the occurrence of *Crassicollaria intermedia* (DURAND-DELGA, 1957) (e.g. REMANE, 1985).

2.2. Occurrences in the Plassen Carbonate Platform

Mt. Jainzen (Text-Fig. 4/2)

The Plassen Formation of Mt. Jainzen (834 m) near Bad Ischl in the Austrian Salzkammergut covers an area of about 0.6 km^2 and is up to approximately 400 m thick. The exposed limestones of the Plassen carbonate platform



Text-Fig. 3.
Type-locality of *Pseudorothpletzella schmidi* n. gen., n. sp. at the Ewige Wand-Predigtstuhl, NE of Bad Goisern in the Salzkammergut area of Upper Austria. The holotype was found in sample E-815 (right below, close to Hotel Predigtstuhl).

mainly comprise platform margin deposits with corals and stromatoporoids. DIENER (1899) indicated a Tithonian age on the basis of the occurring corals, gastropods and stromatoporoids. Stratigraphic more diagnostic microfossils such as benthic foraminifera or dasycladales have not been found despite the study of several hundreds of thinsections. Thus, an affiliation to the first reefal interval of Late Kimmeridgian age (see introductory notes) can also not be excluded.

Mt. Rettenstein (Text-Fig. 4/3)

Mt. Rettenstein (2246 m) is located near Filzmoos in the Salzburg Calcareous Alps southwest of the Dachstein Block. Although it is one of the larger occurrences of the Plassen carbonate platform, nearly nothing is known about the occuring Late Jurassic shallow water limestones, previously assigned to the Triassic Dachstein limestone (TRAUTH, 1916). In the framework of the geological mapping of the Dachstein area (GANSS et al., 1954) it was assigned to the Plassen limestone with an assumed Tithonian age. Mt. Rettenstein represents the southernmost major incidence of Late Jurassic Plassen carbonate platform rocks in quite a distance to all the other prominent occurrences. The Jurassic succession of Mt. Rettenstein with special reference to the limestones of the Plassen carbonate platform was investigated recently by AUER et al. (2006). *Pseudorothpletzella schmidi* n. gen., n. sp. was found in one sample of a cement-supported boundstone rich in microencrusters (Text-Figs. 2/2, 8). Based on benthic foraminifera (*Labyrinthina mirabilis* WEYNSCHENK, 1951, *"Kilianina" rahonensis* FOURY & VINCENT, 1967), the Plassen carbonate platform of Mt. Rettenstein can be assigned to the Kimmeridgian (SCHLAGINTWEIT et al., 2006a).

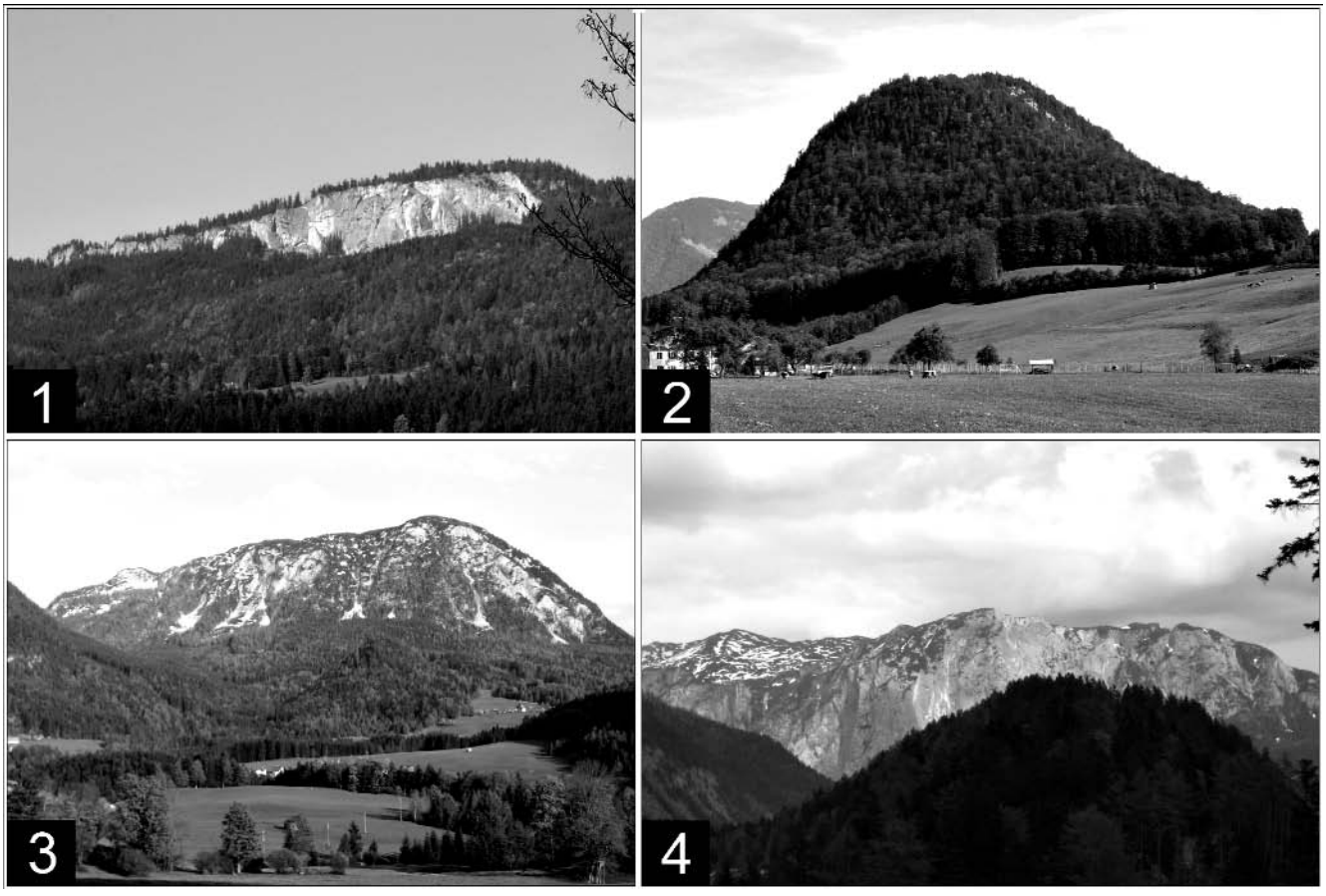
Mt. Trisselwand (Text-Fig. 4/4)

East of Bad Aussee (Grundlsee area) in the Austrian Salzkammergut, located on the topographic map of Austria sheet no. 96 Bad Ischl. Mt. Trisselwand is the western peak of a very huge Late Jurassic platform carbonate area (~ 55 km^2), and belongs to the so-called Totes Gebirge. For the location of the sample TK-11 containing *Pseudorothpletzella schmidi* n. gen., n. sp., refered to the platform slope facies, see Fig. 1 in SCHLAGINTWEIT & EBLI (1999).

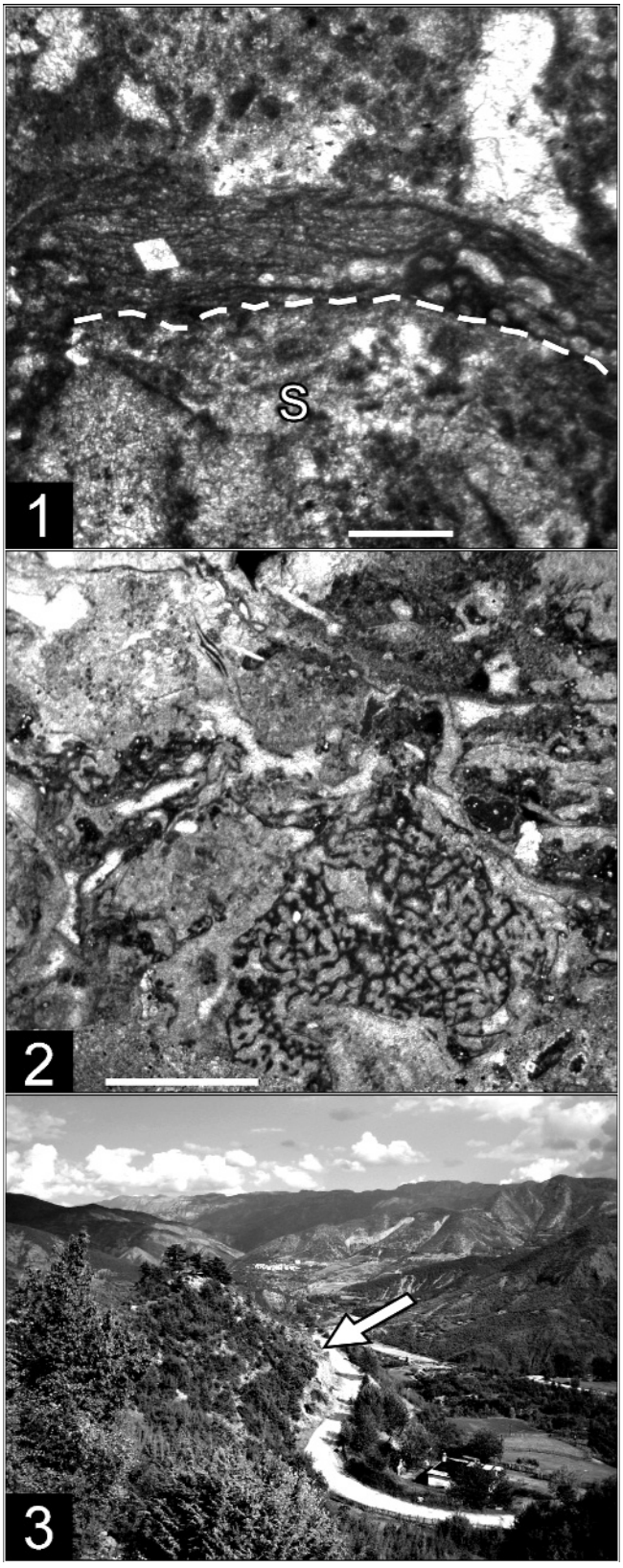
2.3. Occurrences in the Albanides

Blinisht

The locality Blinisht is situated in the northwestern Mirdita area and is part of the radiolaritic ophiolitic wildflysch (HOXHA, 2001; GAWLICK et al., 2007). *Pseudorothpletzella schmidi* n. gen., n. sp. derives from different clasts of a mass-flow (Text-Fig. 5). Beside different ophiolite clasts and blocks the carbonate clast spectrum consists mainly of different (hemi)pelagic and shallow-water Triassic and Jurassic clasts (HOXHA, 2001; GAWLICK et al., 2006; GAWLICK, MISSONI, HOXHA, unpublished data) also containing presumably Middle Triassic cement-rich margin facies. *Pseudorothpletzella schmidi* n. gen., n. sp. was found also in cement-rich margin facies, partly showing dolomitization, with different microencrusters such as *Koskinobullina socialis* CHERCHI & SCHROEDER, 1979, *Radiomura cautica* SENOWBARI-DARYAN & SCHÄFER, 1979 and serpulids, *Neuropora* sp. In addition, there are specimens of "stromatoporoids" such as



Text-Fig. 4.
Selected occurrences of *Pseudorothpletzella schmidi* n. gen., n. sp. in the Northern Calcareous Alps.
1 = Ewige Wand, view from the south; 2 = Mt. Jainzen, view from the west, 3 = Mt. Rettenstein, view from the south; 4 = Mt. Trisselwand (in the background), view from southwest.
1 = Barmstein Limestone; 2–4 = Plassen carbonate platform.



Text-Fig. 5.
1) Crust of *Pseudorothpletzella schmidi* n. gen., n. sp. with one euhedral dolomite rhomb; contact to substrate(s) is marked by a white dashed line. Locality Blinisht, sample AL-402, scale bar = 0.3 mm.
2) Cement-rich boundstone with microencrusters (serpulids and others) and "stromatoporoid" *Calciagglutispongia yabei* REITNER. Locality Blinisht, sample AL-406, scale bar = 2 mm.
3) Locality Blinisht. The occurrence of the mass-flow bearing *Pseudorothpoletzella schmidi* n. gen., n. sp. is along the road on the southeastern side of the small hill in the centre of Blinisht (arrow).

Calciagglutispongia yabei REITNER or *Tubuliella* rotunda TURNŠEK, 1966.

Although the samples containing the new taxon lack any biostratigraphic important microfossils, a late Middle to Late Jurassic age is cautiously assumed for the moment based on recent investigations in the Perlat-Kurbnesh ohiolitic mélange (= radiolaritic wildflysch; e.g. SCHLAGINTWEIT et al., 2006b,c) and the occurrence of the keratose sponge *Calciagglutispongia yabei* REITNER, 1992, known so far from the Kimmeridgian of Spain (REITNER, 1992) and the Northern Calcareous Alps (LEINFELDER et al., 2005). However, this is beside the detection of Late Jurassic shallow water carbonates in the Kurbnesh area, the first evidence of Jurassic shallow water limestones in the northwestern Mirdita zone of Albania and may therefore represent the western continuation of the equivalent occurrences of Kurbnesh (GAWLICK et al., 2004).

3. Systematics

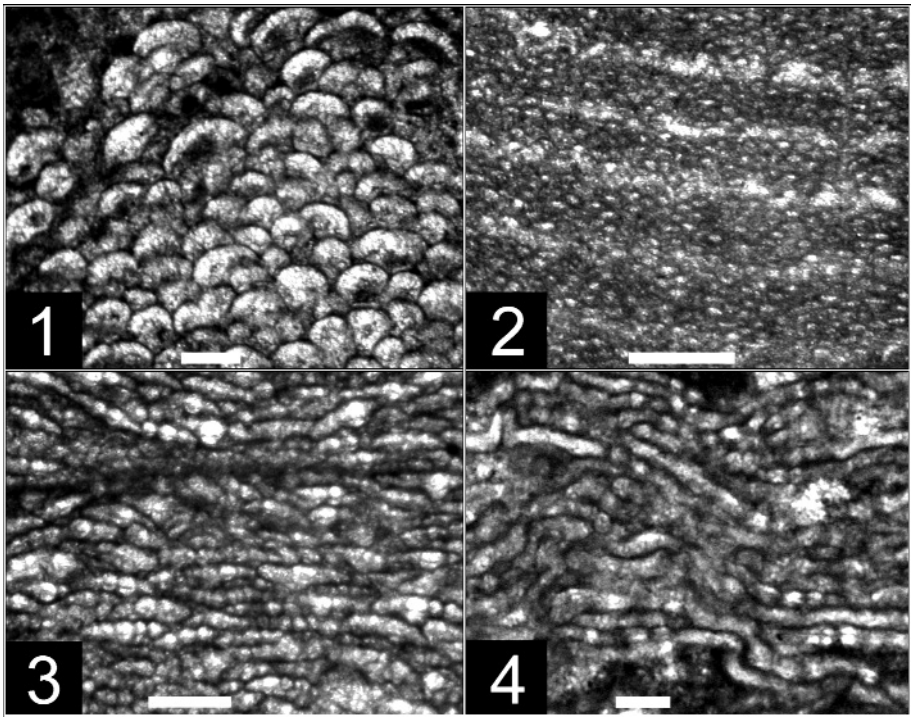
Incertae sedis
Genus *Pseudorothpletzella* n. gen.

Derivatio nominis: The name refers to some affinities with the genus *Rothpletzella* WOOD, 1948.

Diagnosis: Encrusting microorganism forming flat to dome-shaped juxtaposed sheets. The superimposed layers of tiny tubes are not laterally persistent but are wedging out rapidly. In oblique sections tubes appear as "strings of pearls". Any kind of differentiation within the crusts or of the cells or dichotomous branching is absent. Wall thin of microcrystalline appearance.

Type species: *Pseudorothpletzella schmidi* n. sp.

Discussion: As the genus name already implies, *Pseudorothpletzella* n. gen. shows affinities to the Middle to Late Palaeozoic (Devonian-Silurian) genus *Rothpletzella* WOOD, 1948, both prostrate genera. *Rothpletzella* or taxon related to the "*Rothpletzella* group" are composed of "flat, curved or encrusting sheets of juxtaposed tubes which branch dichotomously in one plane" (RIDING, 1991: p. 71, see also MAMET, 1991: p. 429). Branching of the tubes was not observed in *Pseudorothpletzella* n. gen. nor are the sheets laterally constant. The internal filament diameter of *Rothpletzella* ranges for example between 20–50 μm (RIDING & FAN, 2001: Fig. 10). The values for *Pseudorothpletzella* n. gen., though a little bit smaller, lie in a comparable range of 13–32 μm. *Rothpletzella* was regarded as cyanobacterium (calcimicrobe) or green alga but its affinities are still unclear and it is therefore treated as microproblematicum (RIDING & FAN, 2001). The youngest records of *Rothpletzella* in the literature are indicated as the Frasnian stage of the Late Devonian (MAMET, 1991: p. 429). The occurrence of *Rothpletzella* in Post-Palaeozoic strata is uncertain. *Rothpletzella* sp., figured by HELM & SCHÜLKE (1998. Pl. 16, Fig. 1) may belong to bryozoans of the Berenicea group (see for example SCHMID, 1996: Fig. 137). The specimens figured as *"Sphaerocodium"* sp. from Late Triassic reefal limestones of Hydra/Greece, associated with *"Wetheredella"* sp. by SCHÄFER & SENOWBARI-DARYAN (1983: Pl. 4, Fig. 2, 8), however, show striking similarities to our Late Jurassic specimens. From the Anisian of Hungary another taxon that can be compared with *Pseudorothpletzella* n. gen. was described as *Aggtecella hungarica* by SENOWBARI-DARYAN & VELLEDITS (2007) assigned to the Rhodophyta. It is composed of "nodular or laterally extended crusts composed of parallel or concentrically running layers oriented parallel to the substrate" (excerpt from the original diagnosis), a general bauplan being different to *Pseudorothpletzella* n. gen.

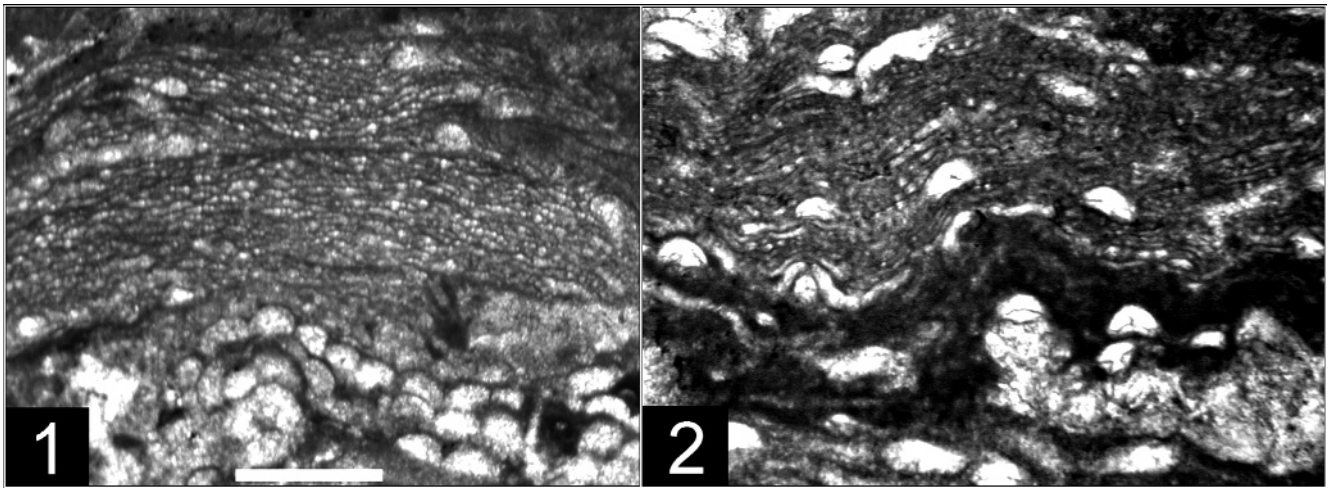


Text-Fig. 6.
Comparison of microstructures.
1) *Koskinobullina* CHERCHI & SCHROEDER, 1979.
2) *Iberopora* GRANIER & BERTHOU, 2002.
3) *Pseudorothpletzella* n. gen.
All specimens from Late Jurassic rocks of the Northern Calcareous Alps.
4) *Rothpletzella gotlandica* (ROTHPLETZ, 1908) WOOD, 1948, Silurian of Gotland island (Sweden).
Scale bar (1–4) = 0.1 mm.

With respect to other Mesozoic, namely Late Jurassic microencrusters, there are little to no affinites. In the cement-supported microencruster frameworks where *Pseudorothpletzella* n. gen. is of subordinate importance, *Koskinobullina socialis* CHERCHI & SCHROEDER, 1979 and *Iberopora bodeuri* GRANIER & BERTHOU, 2002 are common taxa. *Iberopora bodeuri* was erroneously considered by SCHLAGINTWEIT & EBLI (1999) to be identical to the crust problematicum described by SCHMID (1996) from the Kimmeridgian of Portugal as correctly remarked by BUCUR et al. (2005). In fact, this form represents the new taxon *Pseudorothpletzella* n. gen. we describe from the Late Jurassic of the Northern Calcareous Alps. The similarities of the "crust problematicum" to *Sphaerocodium* (= *Rothpletzella*) was already remarked by SCHMID (1996: p. 205).

The Middle Jurassic to Middle Cretaceous taxon *Koskinobullina* CHERCHI & SCHROEDER, 1979 (Text-Fig. 6/1) also shows great affinities to a Paleozoic genus: *Wetheredella* WOOD, 1948. In Triassic reefs, taxa showing affinities to both couplets or consortiums *Rothpletzella/Wetheredella* on the one side (Text-Fig. 7/2) and *Pseudorothpletzella/Koskinobullina* (Text-Fig. 7/1) on the other side are missing. *Koskinobullina* is clearly different from *Pseudorothpletzella* especially by its perforated hyaline calcitic walls and distinctly larger cell/chambers (0.08 to 0.24 mm, CHERCHI & SCHROEDER [1979: Tab. 1]). *Iberopora* is composed of tiny superimposed cells not arranged in sheet layers (GRANIER & BERTHOU, 2002; SCHLAGINTWEIT, 2004; Text-Fig. 6/2). The specimens of *Iberopora bodeuri* HELM et al. (2003) were included with question mark in the synonymy (see below) because it shows the regular occurrence of substrate parallel sparitic layers that we didn´t observe in the Alpine material.

From the Neocomian of the Mirdita Zone of Serbia, RADOIČIĆ (2005) illustrated crusts of „microbial epiliths" composed of „chain-like, slightly interlaced threads" (diameter of 0.016 mm). These forms show some similarities to *Pseudorothpletzella* nov. gen. but are more represented as single layers (not superimposed). Additionally, it is not clear whether these „microbial epiliths" are in fact tubular (with constrictions) or a chain of individual cells/chambers. In conclusion, *Pseudorothpletzella* nov. gen., is treated as a microproblematicum or incertae



Text-Fig. 7.
Contrasts of the *Pseudorothpletzella-Koskinobullina* consortium and the *Rothpletzella-Wetheredella* couplet.
1) Crusts of *Pseudorothpletzella schmidi* n. gen., n. sp. with intercalated chambers of *Koskinobullina socialis* CHERCHI & SCHROEDER, 1979. Late Jurassic of Northern Calcareous Alps; locality Mt. Jainzen, sample D-825, scale bar = 0.3 mm.
2) Crusts of *Rothpletzella* sp. with intercalated chambers of *Wetheredella* sp. Silurian of Gotland.

sedis of a possible microbial origin (? calcified sheets of cyanobacteria, see discussion in RIDING, 1991).

Pseudorothpletzella schmidi n. sp.

(Text-Fig. 2/1–2/2, 5/1, 6/3, 7/1; Pl. 1, Figs. 1–6)

?1996 Krustenproblematikum – SCHMID: 205, Figs. 125–126, Kimmeridgian of Portugal.

?2003 *Iberopora bodeuri* GRANIER & BERTHOU – HELM et al.: 78, Pl. 6, Fig. 3, Oxfordian of NW-Germany.

?2004 *Iberopora bodeuri* GRANIER & BERTHOU – SHIRAISHI & KANO: Fig. 5C (pars), Late Jurassic-Earliest Cretaceous of Japan.

?2005 *Iberopora bodeuri* GRANIER & BERTHOU – HELM: 54, Pl. 39, Figs. 1–2, Pl. 44, Fig. 1 (pars), PL. 45, Fig. 1 (pars), Oxfordian of NW-Germany.

Derivatio nominis: The species name is dedicated to D. Schmid (University of Munich), who described and figured the new taxon as Krustenproblematikum from the Late Jurassic of Portugal.

Holotype: Specimen figured on Plate 1, Figs. 1 (detail from 2) and 2, thin-section E-815 (Ewige Wand, central Salzkammergut). Depository: Montanuniversität Leoben, Department für Angewandte Geowissenschaften und Geophysik: Lehrstuhl Prospektion und Angewandte Sedimentologie (collection Prof. H.-J. GAWLICK).

Material: In the last decade we investigated several thousands of thin-sections of different localities of the Alpine Plassen carbonate platform or its resediments (e.g. Barmstein Limestone). *Pseudorothpletzella schmidi* n. gen., n. sp. is very rare and was found in distinctly less than 1 % of all studied samples. Even in the thin-sections from its characteristic paleoenvironment of platform margin to fore-reefal deposits *Pseudorothpletzella schmidi* n. gen., n. sp. is a very rare taxon.

Locus Typicus: Ewige Wand - Predigtstuhl north of Bad Goisern, central Salzkammergut area of Upper Austria, about 250 m NE of the Hotel Predigtstuhl at ~980 m a.s.l. (Fig. 3: Sample E-815). The locality can be found on the Topographic Map of Austria ÖK 50.000 sheet no 96 Bad Ischl, longitude 13°38´, latitude 47°39´.

Stratum typicum: Series of mass-flow breccias and calciturbidites refered to be similar to the Barmstein Limestones. These resediments are intercalated in basin sediments (Oberalm Formation) that may contain calpionellids. The occurrence of *Crassicollaria intermedia* (DURAND-DELGA, 1957) indicates a Late Tithonian age. Whether this age accounts for the whole series, however, is unknown.

Diagnosis: See diagnosis of the genus.

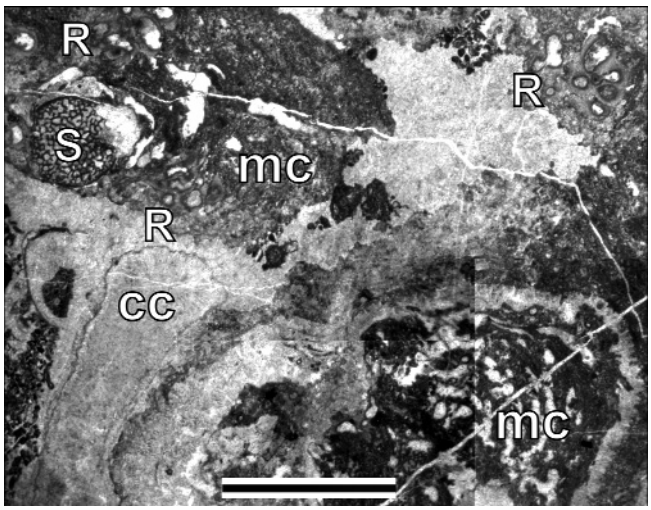
Description: Flat to dome-shaped crusts composed of subparallel tubes normally not exceeding thicknesses of more than 1 mm and laterally wedging out rapidly (Pl. 1, Fig. 5); sometimes only some sheets of filament layers are present. Crusts often show incorporation of other microencrusters, mostly *Koskinobullina socialis* CHERCHI & SCHROEDER, 1979 interpreted as biomuration (Fig. 7/1). The inner diameter of the filaments ranges from 13 to 32 μm (SCHMID, 1996: 17–24 μm). The thin wall is micritic and has a thickness of 3 to 7 μm. In oblique sections, the tubes appear as „strings of pearls“. The occurring laminae that seem to divide the tubes in these cases in fact belong to the wall of neighboring tubes. Thus, these can be approached as pseudolaminae. No other structures inside the tissue nor any differentiation of basal or outer parts was observed.

Discussion: See discussion of genus.

Microfacies and palaeoenvironment: *Pseudorothpletzella schmidi* n. gen., n. sp. was found in cement-supported microframeworks (e.g. Text-Fig. 8) with the following microencrusters (in alphabetical order, irrespective of abundances):

Iberopora bodeuri GRANIER & BERTHOU, 2002
Koskinobullina socialis CHERCHI & SCHROEDER, 1979
Radiomura cautica SENOWBARI-DARYAN & SCHÄFER, 1979
Terebella lapilloides MUENSTER, in GOLDFUSS 1833
"Tubiphytes" morronensis CRESCENTI, 1969

Other encrusting microbiota include serpulids, bryozoa, *Neuropora lusitanica* TERMIER, 1985 and encrusting sponges such as *Calcistella* cf. *jachenhausenensis* REITNER, 1992. Calcisponges (e.g. *Thalamopora lusitanica* TERMIER & TERMIER, 1985 in TERMIER et al., 1985 and „stromatoporoids“ with ellipsactinids or *Astrostylopsis grabenensis* GERMOVSHEK, 1954 are typical accessorial constituents of the microencruster boundstones. Besides the forms listed above, there are some more microencruster of unknown systematic position still needing description. This peculiar microfacies of cement-supported boundstones rich in microencruster formed a rim at medium to high-energy platform margins (fore-reefal/upper slope transition) (SCHLAGINTWEIT & GAWLICK, 2005; and 2007, for details). As already remarked previously, *Pseudorothpletzella schmidi* n. gen., n. sp. accounts to less than 1 % to the volume of these microframeworks. As the association lacks the supposedly photophile taxa *Lithocodium* ELLIOTT, 1956, *Bacinella* RADOIČIĆ, 1959 or *Thaumatoporella* PIA, 1927 it cannot be compared with the „high diverse“ association of microencruster reported from the Late Jurassic inner and p.p. middle ramp facies of Portugal (SCHMID, 1996). Both *Rothpletzella* WOOD, 1948 and *Pseudorothpletzella* n. gen. may occur in the same palaeoenvironment of fore-reefal to upper slope facies; *Rothpletzella* in addition may also form oncoids (e.g. CHEN et al., 2002; RIDING & FAN, 2001; STEPHENS & SUMMER, 2003; WOOD, 2004), a palaeoenvironment where *Pseudorothpletzella* n. gen. was never observed in the Northern Calcareous Alps. In the Late Jurassic of Portugal, however, SCHMID (1996) mentioned the finding of the „crust problematicum“ (= *Pseudorothpletzella* n. gen.) within an oncoid of the shallow lagoon. In the Silurian of Gotland *Rothpletzella* is a main constituent of stromatoporoid-calcimicrobe reefal structures of comparably small dimensions (NOSE et al., 2006). Taking into account the guild concept of reefal



Text-Fig. 8.
Example for the Late Jurassic microfacies where *Pseudorothpletzella schmidi* n. gen., n. sp. occurs (another example see Pl. 1, Fig. 5).
Cement-supported micro-encruster boundstone with with microbial crusts (mc), cement crusts (cc), microencruster *Radiomura cautica* SENOWBARI-DARYAN & SCHÄFER, 1979 (R) and stromatoporoid (S). Cement volume about 40–50 %.
(Late) Kimmeridgian Plassen carbonate platform of Mt. Rettenstein, sample Rö 166. Scale bar = 5 mm.

environments, *Pseudorothpletzella schmidi* n. gen., n. sp. played the role of a constructor sensu FAGERSTROM (1991) in the Late Jurassic micro-encruster frameworks, but only at a microscale.

Stratigraphy: The known stratigraphic record is from ?late Middle Jurassic/Oxfordian to Late Tithonian/Early Berriasian.

Occurrences: Austria (Northern Calcareous Alps), Portugal, Albania.

4. Conclusions

Pseudorothpletzella schmidi n. gen., n. sp., a taxon incertae sedis of possible microbial origin, represents a further constituent of a high diverse association of microencrusters that characterize well-agitated Late Jurassic fore-reefal deposits in the intra-Tethyan realm. These microencruster associations formed rigid microframeworks (boundstones) fixed to some extent by early diagenetic radial-fibrous cement crusts. They stabilized the upper slopes and acted as stable substrate for bioconstructions at the platform margins. This paleoenvironment can be compared to the distal parts of the so-called actinostromariid zone in the Late Jurassic reef model established by TURNŠEK et al. (1981).

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Plate 1

Pseudorothpletzella schmidi n. gen., n. sp.
Upper Jura ssic, Northern Calcareosu Alps, Austria.

Fig. 1: Barmsteinkalk, Detail of Fig. 2.
Ewige Wand – Predigtstuhl, sample E-815.
Scale bar = 0.2 mm.

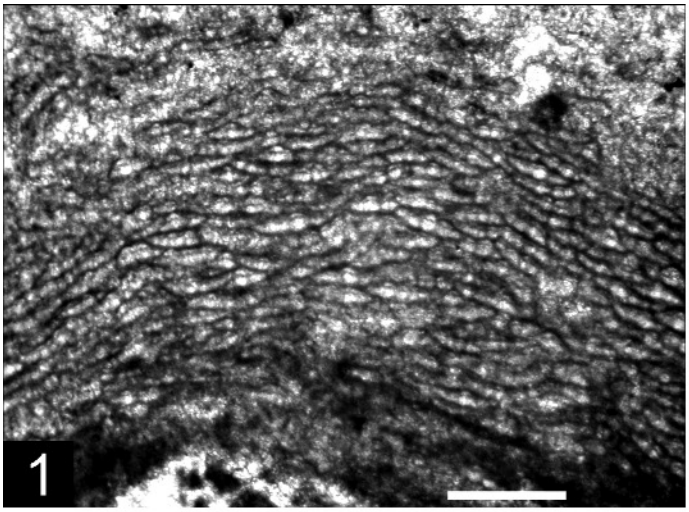
Fig. 2: Barmsteinkalk.
Ewige Wand, sample E-815.
Scale bar = 0.5 mm.

Fig. 3: Plassen.
Trisselwand carboante platform, sample TK-11-2.
Scale bar = 0.2 mm.

Fig. 4: Plassen.
Trisselwand carboante platform, sample TK-11-2.
Scale bar = 0.3 mm.

Fig. 5: Plassen.
Jainzen carboante platform, sample D-825.
Scale bar = 1 mm.

Fig. 6: Plassen, Detail von Fig. 5.
Jainzen carboante platform, sample D-825.
Scale bar = 0.3 mm.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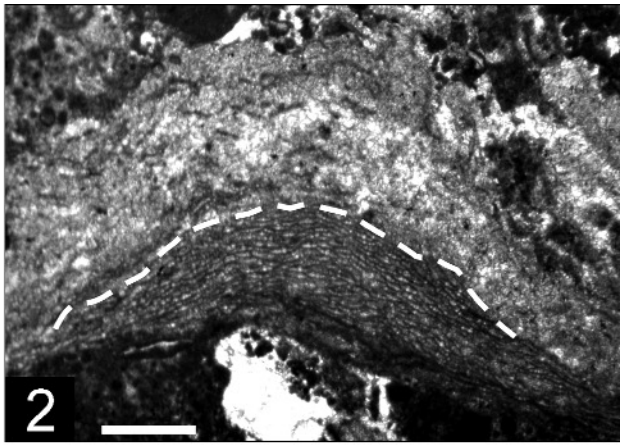
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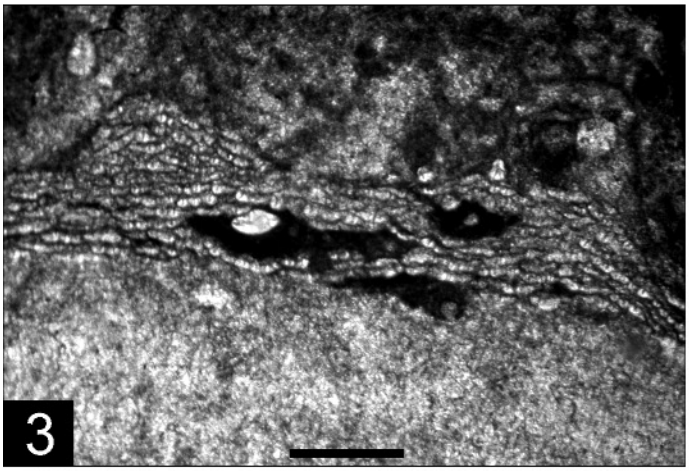
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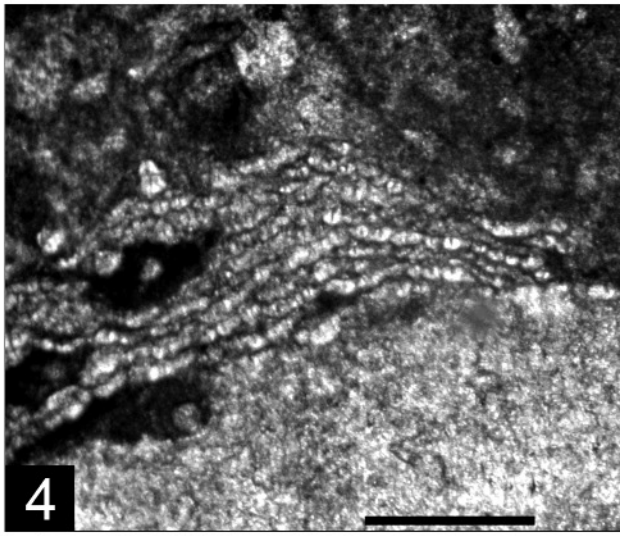
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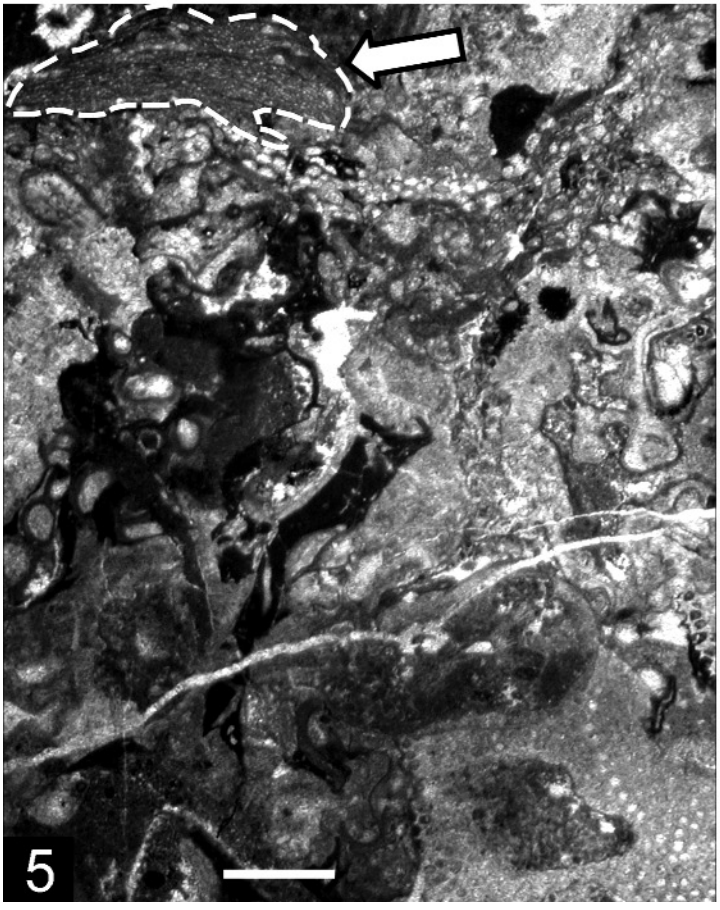
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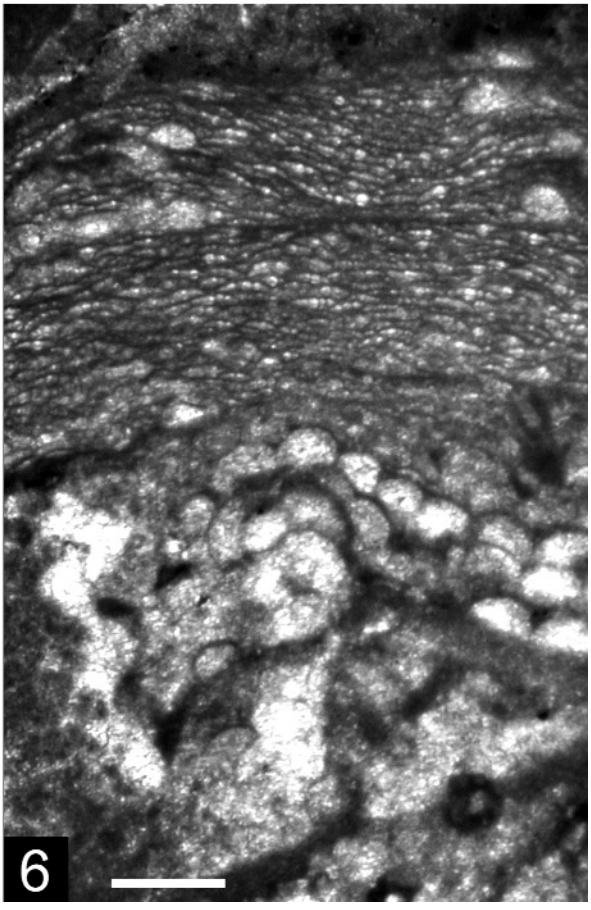
6

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