RGNZ/MGPB

Characteristics of the facies and radiolitid paleoenvironment of the Upper Cenomanian shallow-water succession from the southern part of the Adriatic Carbonate Platform, northwestern side of Korčula Island, Croatia

Rudarsko-geološko-naftni zbornik
(The Mining-Geology-Petroleum Engineering Bulletin)
UDC: 552.5
DOI: 10.17794/rgn.2023.5.2

Original scientific paper

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Abstract

Upper Cenomanian limestones from the northwestern part of the island of Korčula in Croatia are shallow-water *Chondrodonta*-level deposits that represent a lateral equivalent of a foundered platform paleoenvironment. The succession consists of peritidal limestones organised in irregular shallowing-upward cycles, indicating the influence of sinsedimentary tectonics in the background of their formation. The peak of the transgression is marked by bioclastic rudstones, which represent the most open paleoenvironmental conditions. Radiolitids are present through biostromal floatstones-rudstones where individuals thrive as elevator or clinger palaeoecological morphotypes, indicating that the rate of carbonate sedimentation is a key palaeoecological factor in their presence/absence within a subtidal paleoenvironment.

Keywords:
Rudists; palaeoecology; shallow-water carbonates; foundered platform; Adriatic Carbonate Platform.

1. Introduction

The Adriatic Carbonate Platform (AdCP) was one of the largest in the Peri-Mediterranean region during the Mesozoic (**Herak, 1986, 1990; Tari, 2002, Vlahović et al., 2005; Marton et al., 2014, 2017**). During the Late Cretaceous, the platform reached full maturity when an Upper Cenomanian drowned platform event took place. Signs of this have been recorded throughout the platform (**Gušić and Jelaska, 1990, 1993**; **Fuček et al., 1991; Jelaska et al., 1994; Tišljar et al., 2002; Moro and Ćosović, 2013**; **Vlahović et al., 2005**). Following the drowning event, shallow-water sedimentation was re-established on most of the AdCP. The exact biostratigraphical age of the drowning event is difficult to determine because the last and first appearances of the most important biostratigraphical microfossils coincide with the Cenomanian-Turonian boundary (**Velić, 2007**). Moreover, chondrodonts, namely a macrofossil characteristic of the Late Cenomanian (**Posenato et al., 2020**), may indicate a complete or shortened biostratigraphical range depending on the moment at which the drowned platform event occurred, which is estimated at around the Cenomanian/Turonian boundary (**Vlahović et al., 2005**) based on its correlation with the oceanic anoxic event (OAE 2; **Jenkyns et al., 2017; Del Viscio et al., 2022**).

The radiolitid congregations on the AdCP are mostly interpreted as thickets, bouquets, or clusters (**Moro, 1997; Moro et al., 2002**), in the sense of **Ross and Skelton (1993)** according to their lateral extension within beds. Radiolitids are considered to be in this kind of inner shelf and platform paleoenvironment (**Ross and Skelton, 1993**) exclusively as sediment-dwelling elevators (**Gili et al., 1995**). The lateral presence of horizontally orientated individuals is designated as floatstones (**Moro, 1997; Moro and Ćosović, 2000; Moro et al., 2002**) where individuals are presumably toppled due to a lack of sediment supply.

The aims of this paper are to: (a) describe the shallow-water sedimentary succession forming the deposits that characterized this part of the island, which corresponds to the drowned platform event; and (b) determine the role of the sedimentation rate within the paleoenvironmental conditions based on the characteristics of the radiolitid congregations and accompanying macrofossil community.

2. Geological setting

The Upper Cretaceous succession from the NW part of the island of Korčula, Croatia (see **Figure 1**) was sampled and studied, consists of low energy peritidal limestones in vertical exchange with rudist bistromes and floatstones (**Korolija and Borović, 1975; Vlahović et al., 2005**). The section belongs to the External Dinar-

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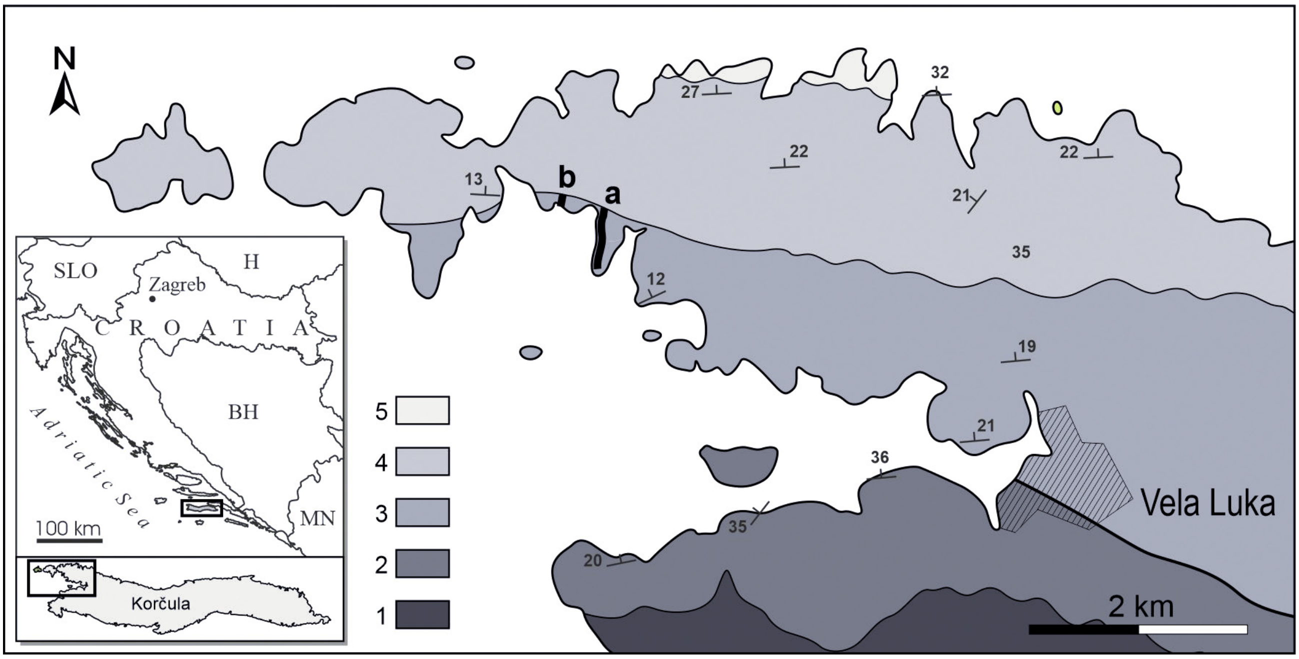

Figure 1: Situation map showing the position of the investigated succession (a) and lateral part of the uppermost part of the succession with a flute cast (b) 1. Berriasian-Hauterivian, 2. Barremian-Aptian, 3. Cenomanian, 4. Turonian, 5. Coniacian-Santonian. Modified after **Korolija and Borović (1975)**.

ides (**Herak, 1986, 1990; Marton et al., 2014, 2017**) or the Dalmatian karst/Adriatic NE unit (**Korbar, 2009**). The investigated profile is a tectonically uninterrupted succession of Upper Cretaceous strata with a bedding dip of 12 degrees.

Although a regional Cenomanian-Turonian eustatic event was recorded throughout the AdCP, as well as in the eastern part of Korčula Island (**Vlahović et al. 2005**), emerged areas occurred relatively distal to the investigated succession, in the northern part of the platform, where synsedimentary deformation overtake eustatic sea-level rise. Similarly, more proximal to the investigated succession is the part of NE platform margin, which was also emergent from the Late Cenomanian (in places even earliest Cenomanian) until the Late Santonian, with local bauxite deposits forming in Slovenia, Croatia and Bosnia and Herzegovina (**Šparica, 1981; Buser, 1987; Dragičević and Velić, 2002; Vlahović et al., 2005**).

3. Methods

The structural characteristics of the limestones, bed thickness, and macrofossils appearance were studied in the field, while thin-section analysis of microfacies were obtained from the collected samples. The classification of limestones based on depositional texture was made according to **Dunham (1962)** as expanded and revisited after **Embry and Klovan (1971)**. Visual percentage charts were used to estimate the relative abundance of specific grains (**Bacelle and Borsellini, 1965**; cited in **Flügel, 2004**). The biostratigraphical age of the studied succession is based on **Velić (2007)**.

3.1. Lithofacies of the investigated profile

The lithofacies analysis is based on the study of thin sections supplemented by features observed in the field like bedding, sedimentary structures and macrofossil appearance. The interval from 30.5 m to 33.5 m is characterised by slumping and sliding (see **Figure 5g**), and the uppermost part of the investigated succession by sliding (see **Figures 2, 3** and **4)**, which is marked by a concave upward-sliding surface that is 16.5 m wide and 1.10 high (see **Figure 3**). Further, the more prominent appearance of the uppermost part of the succession is presumably a result of the additional compaction of nonlithified sediments through sliding, as indicated by the concave upward-sliding surface, through laterally more or less visible bedding (see **Figure 3**).

The limestones below and above the investigated succession are peritidal limestones with radiolitids and chondrodonts as field-observable macrofossils. The limestones below the investigated deposits are of Cenomanian age according to the biostratigraphically important microfossils, while those above the succession under study are Lower Turonian with the absence of biostratigraphically important Cenomanian microfossils, as well as chondrodontas.

Five different lithofacies types were distinguished: (a) pellet-peloidal packstone-grainstone (LF 1); (b) laminated pellet-peloidal packstone-grainstone (LF 2); (c) bioclastic floatstone-rudstone (LF 3); (d) *Decastronema-Thaumatoporella* wackestone-packstone (LF 4); and (e) intraclastic packstones-grainstones (LF 5).

Figure 2: Panoramic view (upper photo) of the outcrop with the sediment slides of the uppermost part of the succession (arrows) and detail with the marked end of the investigated succession (lower photo, arrows).

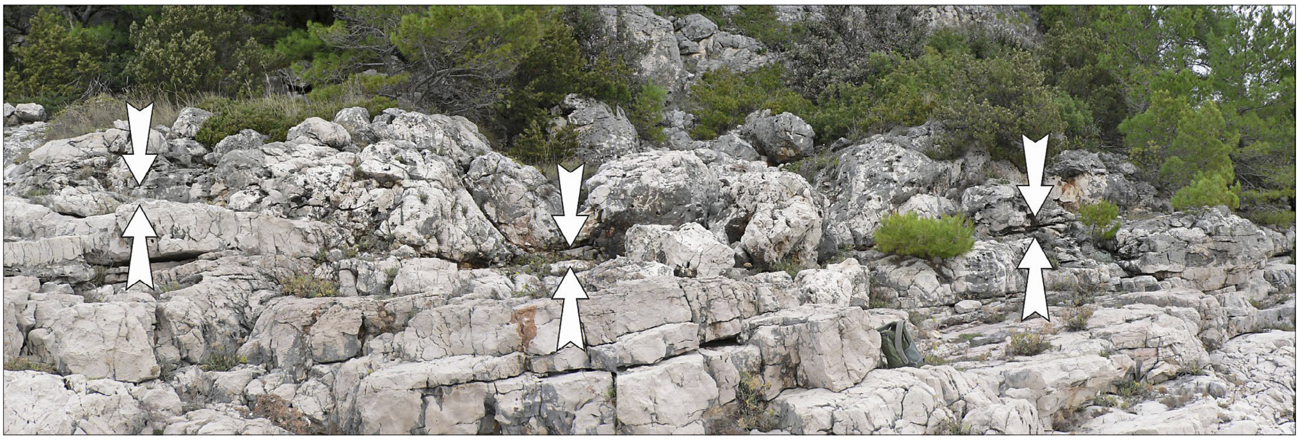

Figure 3: Concave upward-sliding surface (arrows) at the bottom of the sediment slides.

The total thickness of the studied section is 57.70 m (see **Figure 4**). The bed thickness ranges from 0.12 to 2.10 m. In the vertical succession, LF 1 is present throughout, mostly in the lower part, while LF 4 predominates in the upper part (the last 7.5 m) of the succession.

LF 1 is packstone-grainstone with pellets-peloids (estimated percentage 20%–30%), bioclasts (10%–20%) and mud intraclasts (2.5%–7.5%) (see **Figure 6b, c, e** and **i**). Sedimentological structures are absent. The microfossil assemblage is composed of *Chrysalidina gradata* d'Orbigny, *Pastrikella balcanica* Cherchi, Radoičić & Schroeder, *Cuneolina* sp., *Thaumatoporella parvovesiculifera* (Raineri), *Decastronema kotori* (Radoičić), *Pseudonummoloculina* sp., miliolids and rare fragments of macrofossils which include radiolitids, chondrodontas along with echinoids and their spines. The assemblage of microfossils biostratigraphically corresponds to the Middle-Upper Cenomanian (**Velić, 2007**). The lithofacies characteristics suggest a moderate-energy, shallow marine environment.

Within LF 2, the most frequent grains are pellets and peloids with an estimated frequency of 20%–40%. Bioclasts (frequency 5%–20%) and occasionally intraclasts (5%–10%) are also present in thin sections, as well as fenestral fabric (see **Figure 5f; Figure 6g** and **h; Figure 7a** and **b**). The sedimentary structure is lamination. Bioclasts include microfossils and rare fragments of echinoids including their spines, as well as other macrofossils. The microfossil assemblage comprises miliolids, nezzazatids, *Cuneolina* sp., *Pastrikella balcanica* Cherchi, Radoičić & Schroeder and *Thaumatoporella parvovesiculifera* (Raineri). The identified benthic foraminifers indicate a Middle to Upper Cenomanian biostratigraphical age. The lithofacies indicate a shallow-water, low-moderate energy environment.

Within LF 3, bioclastic floatstone-rudstone (see **Figure 5a – e; Figure 6a, d** and **j; Figure 7c**) reveal bioclastic particles making up to 30%–50% of the total sediment, while the frequency of pellets and peloids is estimated at 5%–10%. The frequency of intraclasts is 5%–10%. Bioclastic grains are fragments of radiolitids, chondrodontas, echinoid spines as well as microfossils. The microfossil assemblage is composed of *Chrysalidina gradata* d'Orbigny, *Pastrikella balcanica* Cherchi, Radoičić & Shroeder, and *Cuneolina* sp. The microfossil assemblage listed above biostratigraphically corresponds to the Middle to Upper Cenomanian. The lithofacies characteristics suggest a moderate-high energy, shallow-water environment.

LF 4 is *Decastronema-Thaumatoporella* wacekstones to packstones (see **Figure 7d, g** and **h**) that mainly consist of *Decastronema kotori* (Radoičić) and *Thaumatoporella parvovesiculifera* (Raineri) bioclasts (10%–40%) together with pellets and peloids (5%–10%). Besides fossil remnants of *Decastronema kotori* (Radoičić), *Thaumatoporella parvovesiculifera* (Raineri) and miliolids (up to 2.5%), fenestral fabric (see **Figure 7g** and **h**) is also present with geopetal infills. Laterally, as packstones-grainstones these limestones are rarely laminated (see **Figure 7d** and **h**). There are no biostratigraphically significant microfossils and the age of this MF is determined by the vertical exchange with LF 1 as Middle to Upper Cenomanian. The lithofacies characteristics suggest a low-moderate energy, shallow-marine environment.

LF 5 is packstone-grainstone primarily composed of mud intraclasts (40%–50%) (see **Figure 7e** and **f**). Bioclasts (5%) and pellets-peloids (up to 5%) are also present. The microfossil community is made up of nezzazatids, miliolids, *Thaunmatoporella parvovesiculifera* (Raineri) and *Decastronema kotori* (Radoičić). The biostratigraphical age of this lithofacies is determined according to the vertical exchange with LF 1 as Middle to Upper Cenomanian. The lithofacies indicates a shallow-marine, moderate-high energy environment.

4. Lithofacies analysis

The limestones described above represent different lateral parts of peritidal sediments. The shallowest parts of the peritidal sediments represent three lithofacies: Intraclastic packstones-grainstones (LF 5), laminated peloidal packstones-grainstones (LF 2) and *Decastronema-Thaumatoporella* wackestones-grainstones (LF 4).

The intraclastic packstones-grainstones mostly consist of irregular muddy intraclasts (see **Figure 7e** and **f**) with *Thaumatoporella* and *Decastronema* rarely being present. Intraclasts are common in tidal carbonates, indicating supratidal conditions as well as transgressive basal breccias occurring at the sole of the subtidal within shallowing-upward cycles (**Flügel, 2004**). *Decastronema-Thaumatoporella* packstones-grainstones also represent the shallowest part of the shallowing-upward cy-

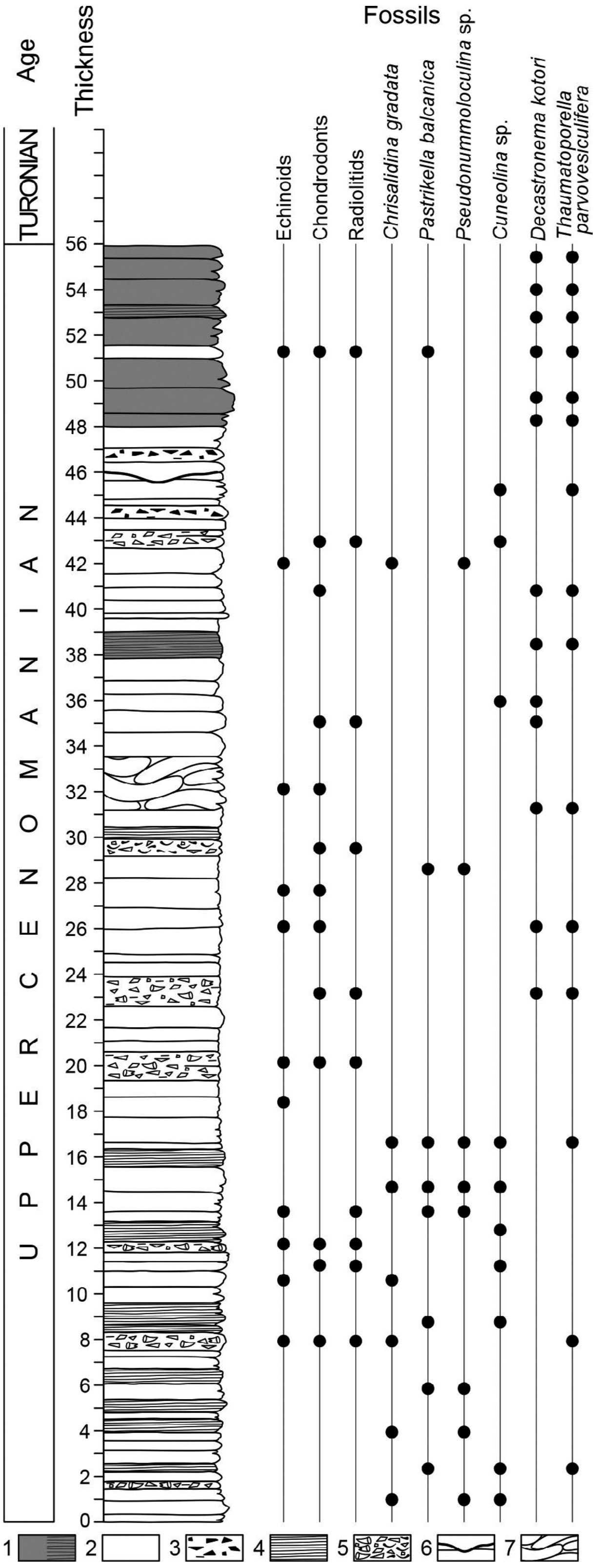

Figure 4: Schematic column of the investigated limestones (thickness in meters). 1. *Decastronema-Thaumatoporella* packstones-grainstones, nonlaminated (left), laminated (right); 2. Pellet-peloidal packstones-grainstones; 3. Intraclastic packstones-grainstones; 4. Laminated packstones-grainstones; 5. Bioclastic floatstones-rudstones, radiolitid ((left) or *Chondrodonta* prevailing (right); 6. Concave upward-sliding surface; 7. Slumping and sliding.

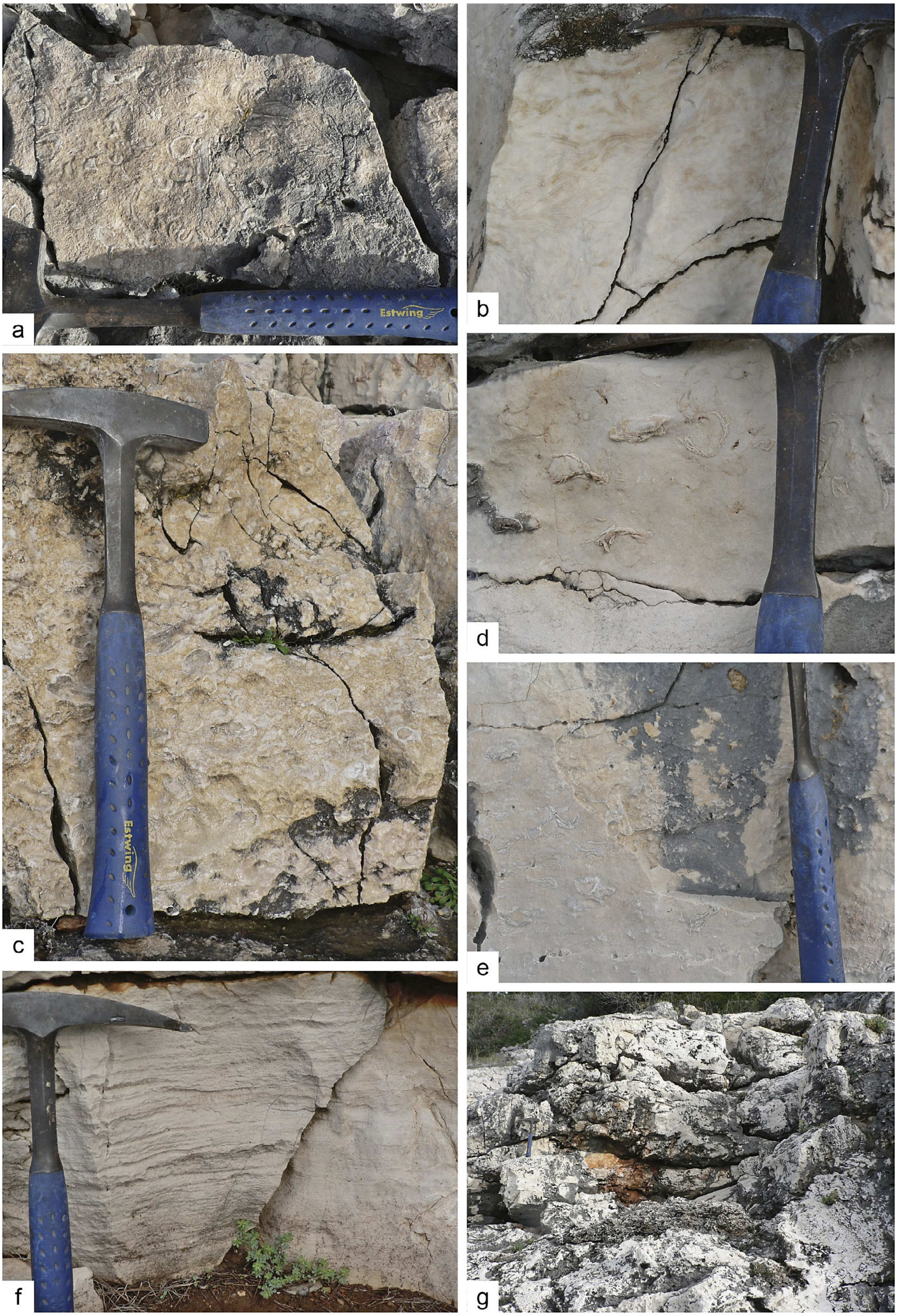

Figure 5: a. Upper bedding plane of radiolitid floatstone-rudstone; b. Upper bedding plane of *Chondrodonta* floatstone-rudstone; c. Side view of the radiolitid floatstone-rudstone from picture a; d and e. Radiolitid floatstone-rudstone with rare radiolitids in the clinger mode of life; f. Laminated limestone; g. Part of succession that is the product of slumping and sliding.

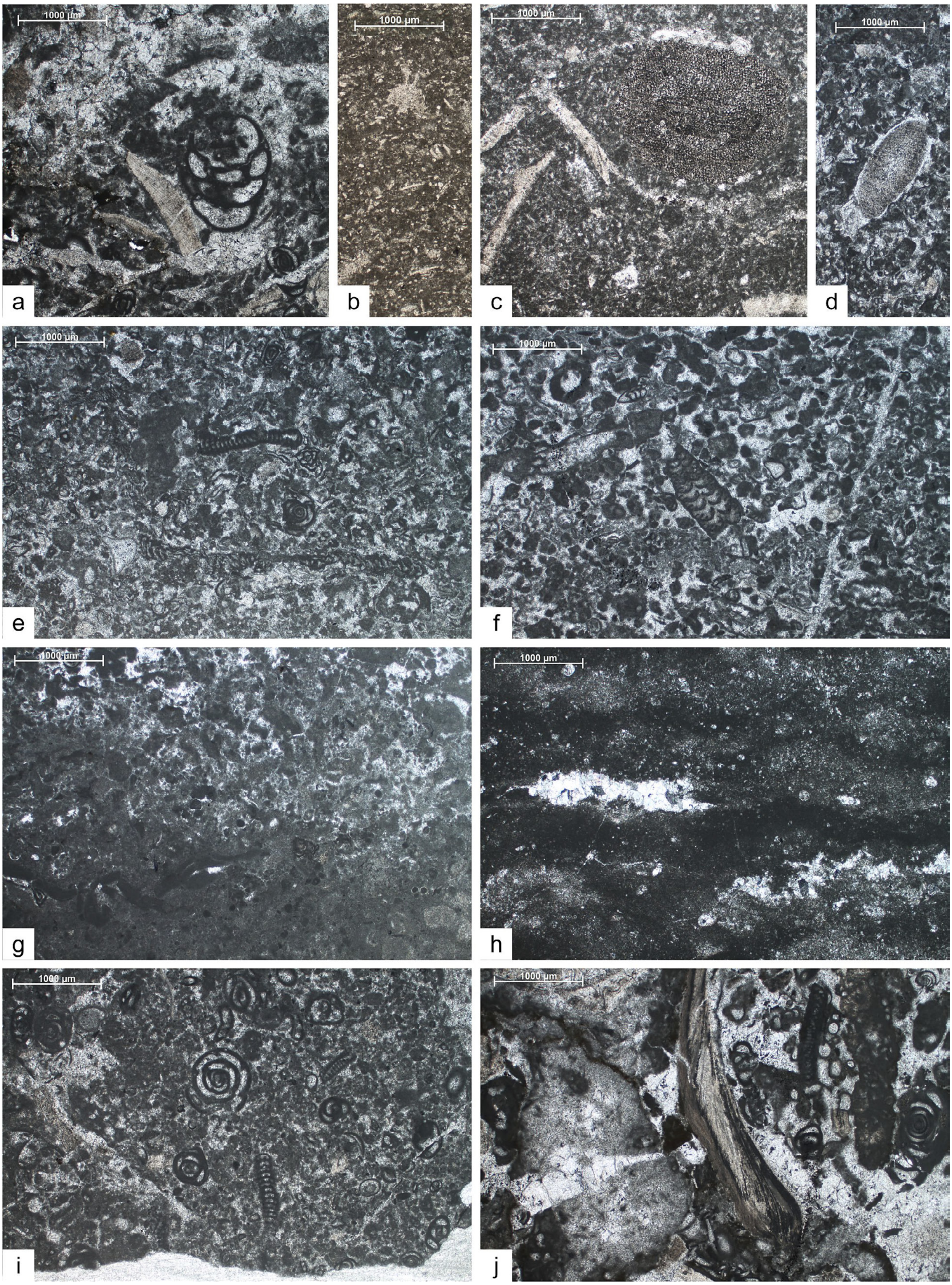

Figure 6: a. Bioclastic floatstone-rudstone with *Chrysalidina gradata*; b and c. Pellet-peloidal packstones-grainstones with echinoid fragments; d. Matrix of bioclastic floatstone-rudstone with echinoid fragments; e. Pellet-peloidal packstone-grainstone with *Pastrikella balcanica*; f. Pellet-peloidal packstone-grainstone with *Cuneolina* sp.; g. Laminated packstone-grainstone with intraclasts; h. Laminated packstone-grainstone with fenestral fabric; i. Pellet-peloidal packstone-grainstone with *Pseudonummoloculina* sp.; j. Bioclastic floatstone-rudstone with a *Chondrodonta* fragment and *Pastrikella balcanica*.

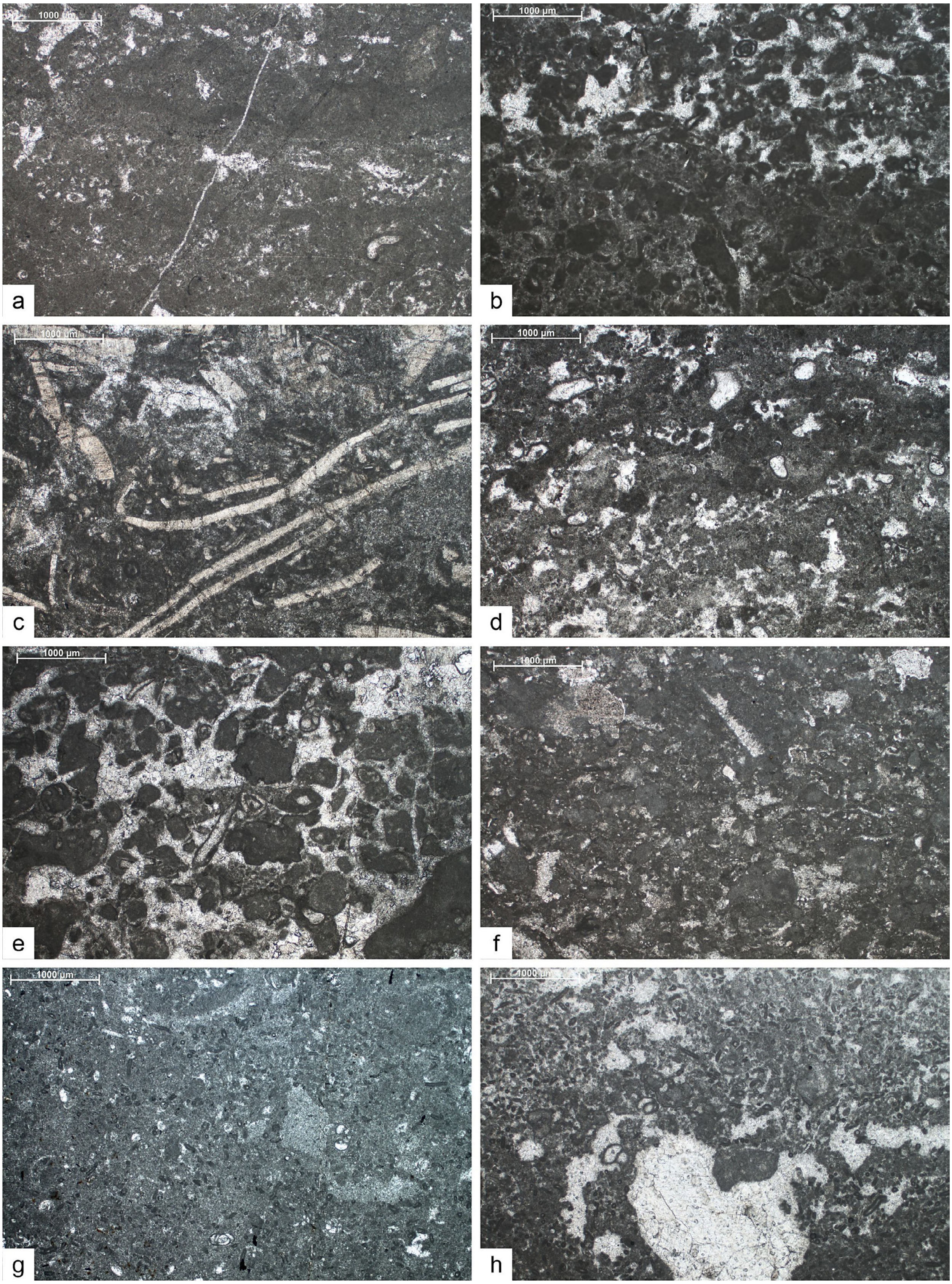

Figure 7: a and b. Laminated packstone-grainstone with fenestral fabric (a) and intraclasts (a and b); c. Bioclastic floatstone-rudstone with *Chondrodonta* shells; d. Laminated *Decastronema-Thaumatoporela* packstone-grainstone with prevailing thaumatoporellas and fenestral fabric; e and f. Intraclastic packstone-grainstone; g. *Decastronema-Thaumatoporela* wackestone-packstone with prevailing decastronemas and fenestral fabric with geopetal infills; h. Laminated *Decastronema-Thaumatoporela* packstone-grainstone with prevailing decastronemas and fenestral fabric.

cles. *Decastronema* lived in intertidal flats as mat-building cyanobacteria (**Golubić et al., 2006**), while the green algae *Thaumatoporella* has a relatively wider niche within reefal to lagoonal paleoenvironments (**Schlagintweit et al., 2013**). Nevertheless, the presence of birdseyes as well as lamination as a structural characteristic (see **Figure 7d, g** and **h**) indicate shallow subtidal to intertidal paleoenvironmental conditions (**Flügel, 2004**). The third lithofacies of the shallowest part of the investigated succession, are laminated packstones-grainstones (LF 2). They are mostly interpreted as storm deposits (**Flügel, 2004**). Another possible explanation is that the exchange of packstone and grainstone laminas (see **Figure 6g** and **h; Figure 7a** and **b**) is the result of interaction between the accommodation space and rate of sedimentation as a lateral reflection of intertidal laminates. Grainstone laminas reflect mud sediment trapped and bound by microbial mats, while packstone laminas represent the reflection of microbial mats developed by cyanobacteria. Generally, the vertical exchange of laminated and nonlaminated packstones-grainstones within the investigated limestones coupled with the presence of fenestral fabric (see **Figure 6h**) increase the likelihood of the latter possibility.

The deeper, subtidal parts are pellet-peloidal packstones-grainstones and bioclastic floatstones-rudstones. The pellet-peloidal packstones-grainstones represent a relatively deeper version of laminated pellet-peloidal packstones-grainstones, similar to laminated/nonlaminated *Decastronema-Thaumatoporella* wackestone-grainstones. The presence of intraclasts (see **Figure 6e, f** and **g; Figure 7a, b** and **f**) in both of them also supports this interpretation. Bioclastic floatstones-rudstones range from radiolitid dominated rudstones (see **Figure 5a** and **c**), indicating the most open part of the depositional environment, to radiolitid- or *Chondrodonta*-dominated floatstones-rudstones (see **Figure 5b, d** and **e**) which, according to the textural composition, laterally corresponds to the pellet-peloidal packstones-grainstones (see **Figure 6d**). Both chondrodontas and radiolitids thrive in the latter through rare radiolitids in a clinger mode of life (see **Figure 5d** and **e**) or as a relatively dense chondrodonta variate with toppled *Chondrodonta* individuals (see **Figure 5b**).

The described lithofacies show shallowing-upward cycles. Their characteristic within a typical sequence is their regularity in the vertical succession (**Tucker, 1993**; **Pratt et al., 1992**). Here, the thicknesses of the subtidal and intertidal are irregular. The parasequences they form are also irregular and random in thickness (see **Figure 4**), which ranges from 7.80 to 1.30 m. Together with slumping and sliding (see **Figures 2** and **3**), this indicates an inclined palaeorelief of the depositional paleoenvironment that varies laterally under the influence of sinsedimentary tectonics.

The slumping and sliding of the pellet peloidal packstones-grainstones (see **Figure 5g**) and sliding of the uppermost part of succession (see **Figures 2** and **3**) is connected with sediment overloading, which is the most obvious reason in shallow-water environments (**Flügel, 2004**). In the investigated succession, the sediment overload could be related to the sinsedimentary tectonics visible in the irregular thickness of the shallowing-upward cycles.

The ideal succession of the lithofacies described above from deeper towards shallower is as follows: the deepest subtidal sediments are bioclastic rudstones of a relatively open paleoenvironment, which presumably represents the peak of a Cenomanian-Turonian transgression within the succession under study. The pellet-peloidal packstones-grainstones and bioclastic floatstones-rudstones represent a relatively shallower subtidal, whereas the laminated pellet-peloidal packstones-grainstones and *Decastronema-Thaumatoporella* packstones-grainstones the shallowest part of the subtidal and intertidal. The end of the shallowing-upward cycles is marked by intraclastic packstones-grainstones that indicate the end of irregular shallowing-upward cycles through supratidal or the shallowest part of subtidal conditions.

5. Radiolitids and rate of sedimentation

Radiolitids as opportunistic rudists could thrive through all three morphotypes (**Ross and Skelton, 1993; Skelton and Gili, 2002**). Within different morphotypes, which reflect the nature of the substrate, the development of a relatively quiet energy environment such as an AdCP-protected inner platform environment most probably gave a boost to the elevator rudists, especially radiolitids.

Biostromes are the result of the interaction between the accommodation space and the rate of carbonate sedimentation (**Moro et al., 2019**). Radiolitids thrive in them as erected, inclined or horizontally orientated individuals as a result of an adequate sediment supply. Biostromes presumably represent squeezed mud mounds due to a restricted accommodation space (**Moro et al., 2019**). Biostromes, which represent radiolitid congregations of different lateral extensions (thickets, bouquets, clusters) appear through different vertical presences within the bed (see **Figure 5a, c, d** and **e**; **Figure 8**). Laterally, the discontinuous and isolated presence of radiolitid congregations through biostromes presumably reflects a rate of sedimentation that is relatively too high for radiolitids and, as a paleoecological factor, controls their presence/absence within the shallow-water subtidal (see **Figure 8**). In such a paleoenvironment, radiolitids thrive as elevators and clingers (later designated in the biostromes of AdCP exclusively as toppled individuals within floatstones-rudstones; **Moro, 1997; Moro and Ćosović, 2000; Moro et al., 2002**) (see **Figure 8**). The elevator mode of life is thus their maximal paleoecological adaptation to the high rate of carbonate sedimentation within the shallow subtidal parts of the platform. Most probably their lateral and vertical absence within shallow-water

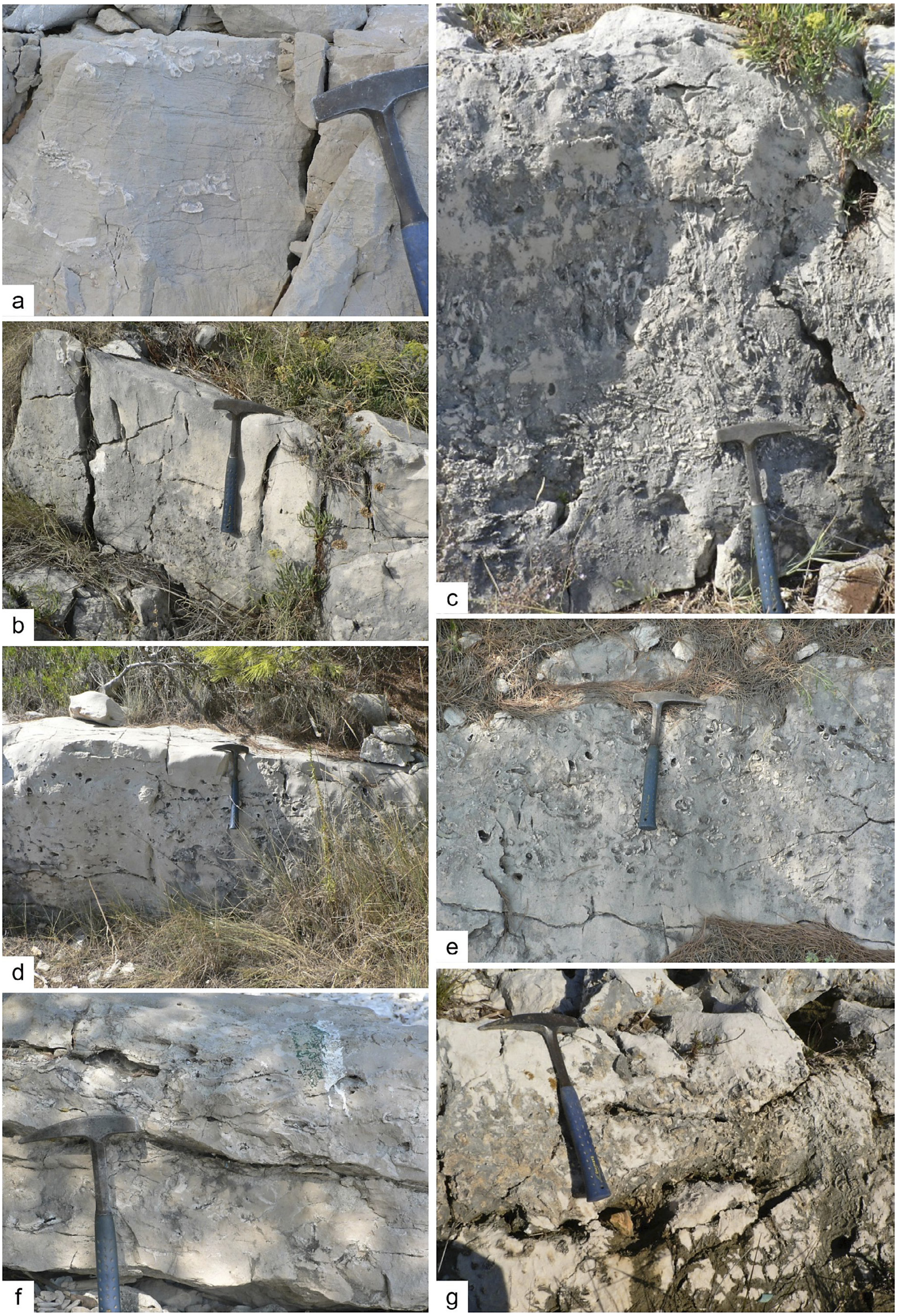

Figure 8: Field photographs of the radiolitid biostromes (congregations) different positions within beds, side view, Coniacian – Santonian outcrops from the northern part of Korčula Island. a and f. As congregations in the middle and upper parts; b. Congregation in the lower part; c. Congregation throughout the bed; d. Congregation through the lower and middle parts; e. Congregation within the middle and upper parts; g. Congregation in the middle part.

successions indicate, even for the elevator thriving mode, a sedimentation rate that was too high. Radiolitids are present in the investigated succession in rudstones (see **Figure 5a** and **c; Figure 6a** and **j**), indicating a relatively high-energy environment in which they thrived as both elevators and clingers. The grainstone texture gave stable sediment for clingers and an adequate sedimentation rate for the elevator morphotypes where grains and clinger shells gave radiolitids an opportunity for an elevator mode of life. In floatstone-rudstones (see **Figure 5d** and **e**), radiolitids in clinger mode are scattered as rare individuals throughout the bed, presumably indicating relatively rarely acceptable rates of carbonate sedimentation for successful thriving. Moreover, absence of elevator morphotype could indicate that radiolitids predominately thrive as clingers.

Chondrodonts could be considered as elevators (**Posenato et al., 2020**) and, unlike radiolitids which could thrive in all three paleoecological morphotypes (**Ross and Skelton, 1993**), they thrive in mud-prevalent paleoenvironments of low to moderate water energy. Here they preferentially thrive in moderate-energy floatstones-rudstones (see **Figure 7c**) through monospecific biostromes with rare radiolitids (see **Figure 5b**). Their rare presence in radiolitid floatstones and rudstones indicate conditions less favourable for them. Apart from other ecological factors (**Dal Viscosio et al., 2022**), chondrodontas, which appear as radiolitids r-strategies (**Gili et al., 1995; Posenato et al., 2020**) are capable, like radiolitids, of coping with a high sedimentation rate through elongated shells as elevators (**Posenato et al., 2020**). In addition, their rearness in rudstone indicates that they preferred relatively more protected paleoenvironments in comparison with radiolitids. Moreover, inclined shrub-like *Chondrodonta* congregations, in contrast with radiolitids, laterally occupied more bottom space and even more upon their death. These characteristics of *Chondrodonta* congregations enabled radiolitids to thrive in the same paleoenvironment through denser populations.

Echinoids are represented with relatively rare test fragments (see **Figure 6b, c** and **d**) or spines. They most probably belong to the regular echinoids which have little chance of being preserved due to the rapid dissociation of the test plates after soft-tissue decay (**Mancosu and Nebelsick, 2016**). Further, their preservation potential is primarily related to the grazer mode of life in environments, which range from firm and rocky substrates where they use spines to wedge themselves into crevices or cavities (**Smith, 1984**; **Mancosu and Nebelsick, 2016**) to soft sediments (**Fell, 1966**; **Lawrence and Jangoux, 2013**; **Mancosu and Nebelsick, 2016**) where the former are less appropriate for the preservation of their tests (**Nebelsick, 1996**; **Mancosu et al., 2015**). Here, the presence of regular echinoid fragments which thrive as epibenthic grazers (**Mancosu and Nebelsick, 2019**) are characteristic of a more open subtidal paleoenvironment of moderate energy. Their rareness within the investigated succession, compared with their abundance within siliciclastic successions (**Mancosu and Nebelsick, 2016, 2017**), besides other palaeoecological factors, such as feeding source (bryozoans, hydrozoans, algae; **Fell 1966; Jacob et al., 2003**), is most probably a high carbonate sedimentation rate which is more suitable for chondrodonts and radiolitids.

6. Conclusion

One may conclude the following from the presented facies analysis of the Upper Cenomanian limestones of the northwestern part of the island of Korčula:

1) The depositional environment is the shallow-water *Chondrodonta* level, which represents the lateral equivalent of a foundered platform paleoenvironment. It consists of irregular shallowing-upward cycles with subtidal packstones-grainstones and floatstones-rudstones, while the shallowest part of the subtidal and intertidal are represented by laminated packstones-grainstones and *Decastronema-Thaumatoporella* wackestones-packstones. The shallowest parts of the shallowing-upward cycles contain intraclastic packstones-grainstones. The presence of slumping and sliding indicate the influence of sinsedimentary tectonics.

2) The transition from the Upper Cenomanian to Lower Turonian is sharp and represents the end of the investigated succession. It is marked by the absence of biostratigraphically important Cenomanian foraminiferal taxa, as well as chondrodontas. The foundered platform event on this part of the Adriatic carbonate platform occurred during the Upper Cenomanian.

3) Radiolitids thrive in a shallow-water paleoenvironment of high to moderate water energy as elevators and clingers, indicating that the carbonate sedimentation rate is presumably one of the main ecological factors determining their distribution within the subtidal paleoenvironment. They thrive through biostromes where congregations are laterally and vertically present within different parts of the beds.

Acknowledgement

The authors would like to thank the anonymous reviewers for providing valuable advices, suggestions end exact notations which improved the manuscript, as well as Katarina Gobo for her helpful discussion and suggestions concerning the concave upward-sliding surface. The authors would also like to thank Robert Koščal for preparing the figures and Murray Bales for the English proofreading.

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SAŽETAK

Facijesne karakteristike i paleookoliš radiolitida gornjocenomanskih plitkomorskih naslaga južnoga dijela Jadranske karbonatne platforme, sjeverozapadni dio otoka Korčule, Hrvatska

Gornjocenomanski vapnenci sjeverozapadnoga dijela otoka Korčule plitkovodne su naslage nivoa Chondrodonta, koje predstavljaju lateralni ekvivalent paleookoliša potopljene platforme. Sukcesija se sastoji od peritidalnih vapnenaca organiziranih u nepravilne cikluse oplićavanja koji upućuju na utjecaj sinsedimentacijske tektonike na njihovo formiranje. Vrhunac transgresije obilježen je bioklastičnim radstonom koji u istraživanome slijedu predstavlja paleoekološke uvjete najotvorenijega dijela potplimnoga okoliša. Radiolitidi su prisutni kao biostrome karakteristika floutston-radston s jedinkama paleoekološkoga morfotipa elevatora ili klingera, što upućuje na to da je brzina karbonatne sedimentacije jedan od glavnih paleoekoloških čimbenika za njihovu prisutnost ili odsutnost unutar potplimnoga paleookoliša.

Ključne riječi:
rudisti, paleoekologija, plitkomorski karbonati, potopljena platforma, Jadranska karbonatna platforma

Author's contribution

Alan Moro (prof. dr sc., carbonate sedimentology, Upper Cretaceous microfacies, rudists) provided the micropaleontological and sedimentological analysis, paleoenvironmental interpretations and presentation of the results. **Aleksandar Mezga** (assoc. prof. dr. sc., ichnology, carbonate sedimentology) performed field work. **Goran Mikša** (dr. sc., echinoids, ichnology) participated in interpretation of echinoid paleoecology and performed field work. **Nikola Kalemarski** (univ. mag. geol.) provided the initial microfacies analysis that was part of his master thesis.