Middle Triassic Carbonate Deposits and Calcareous Algae from the Sasca Zone (Southern Carpathians, Romania)

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KEYWORDS: MICROFACIES - ALGAE (DASYCLADALES) - SASCA ZONE, SOUTHERN CARPATHIANS (ROMANIA) - TRIASSIC (ANISIAN)

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SUMMARY

The Sasca zone situated in the innermost part of the Getic Domain from the South Carpathians comprises mainly Triassic deposits of Scythian-Anisian (?) Ladinian age that can be ascribed to four different members forming the Sasca Formation. Three of the members consist of carbonate deposits. Their study permitted a brief characterization of the main microfacies types, and especially in the Valea Susara Limestone Member the identification of a relatively rich association of foraminifers and calcareous algae. The assemblage with Meandrospira dinarica, Pilammina densa, Oligoporella pilosa and Poncetella hexaster identified in these limestones indicates a Middle Anisian age (Pelsonian-Lowermost Illyrian). Difficulties arise in differentiating between the forms belonging to the Oligoporella-Physoporella group for which a taxonomic revision is necessary. The morphologic characteristics of the three varieties of Diplopora subtilis allow a splitting into different species. Teutloporella peniculiformis Orr, 1963 is regarded as a nomen nudum.

1 GEOLOGICAL SETTING

The Sasca zone forms a narrow outcrop belt of mainly Triassic deposits located in the south-western part of the South Carpathians (Fig. 1), between the Locva Crystalline (Supragetic Unit) and the Palaeo-Mesozoic deposits of the Resita-Moldova Noua zone. Structurally it is the innermost part of the Getic Domain (Sandulescu 1975; Nastaseanu & Maksimovic, 1983). Its tectonic position has been discussed by Strutinski et al. (1987) who proposed a new stratigraphic subdivision of the Triassic deposits. From bottom to top four lithostratigraphic horizons were distinguished: (1) arenitoiditic complex (Seisian-Lower Campilian); (2) dolomitic horizon (Upper Campilian-Lower Anisian); (3) dasycladalean-bearing biosparite horizon (Middle Anisian), and (4) horizon of black micritic dolomites (Upper Anisian) (Strutinski et al., 1987). Based on this subdivision, Bucur (1991) introduced the term "Sasca Formation" for the whole succession and redefined the four horizons as (1) Valea Viriti Conglomerate Member; (2) Dealul Redut Dolomite Member; (3) Valea Susara Limestone Member, and (4) Valea Cerbului Limestone Member (Fig. 1). A short description of these lithostratigraphic units is given in Strutinski et al. (1987). The carbonate deposits are discussed in this paper, giving a brief characterization of the main microfacies types and their micropalaeontology, especially the calcareous algae association.

2 MAIN MICROFACIES TYPES IN THE UPPER SCYTHIAN-ANISIAN CARBONATE DEPOSITS

2.1 Dealul Redut Dolomite Member

The deposits belonging to this member overlie conformably the terrigenous rocks of the Valea Viriti Conglomerate Member deposited in a continental environment. The lowermost layers still contain appreciable amounts of terrigenous material (Pl. 9/1). The dominant microfacies is dolomicrosparites-dolostones (Pl. 9/4, 5), mainly composed of 0.03 - 0.07 mm sized dolomite crystals. The dolomite was formed by replacement of micrite relics, as inferred from the presence of some micrite relics. Bioclasts are present in places, but appear usually only as "ghosts". Quartz silt is occasionally present. A subtype of these microfacies are dolomicrocrites consisting of a groundmass of dolomite crystals (0.015 - 0.050 mm) containing irregular...
areas, filled by larger dolomite crystals. Microbreccias with dolomicrosparitic elements are relatively common. The space between the microbreccia fragments is filled by micrite-microsparite, frequently showing a high content of argillaceous material which is more or less pigmented by iron hydroxides. A special microfacies type is represented by crinoidal dolomicrosparites which are intercalated at various horizons in the dolomitic member. Crinoidal fragments are locally abundant forming cm-thick layers. The crinoidal dolomicrosparites near the base of the succession exhibit a high content of terrigenous material (PI. 9/2). The member may also contain rare fenestral biopelsparites with bivalve and gastropod fragments and isolated thalli of dasycladaleans. The Dealul Redut Dolomite Member was deposited in an intertidal to supratidal environment.

2.2 Valea Susara Limestone Member

This member is mainly represented by dasycladacean-bearing biosparites (Pl. 10/1, 2, 6), deposited in a subtidal, sometimes protected environment. The biosparites contain algae, foraminifers and rare fragments of bivalves, gastropods and echinoderms. These are cemented by sparry calcite in places exhibiting two generations. Both bioclasts and cement can be dolomitized. Poorly dolomitic biomicrites with dasycladaleans and foraminifers occur in the basal part of the member. Various levels of the dasycladalean-bearing biosparites alternate with fenestral micrites-dolomicrites or dolosparites (Pl. 9/6), fenestral dolomitic pelsparites and dolomitic biosparites. The Valea Susara Limestone Member consists in the central part of the zone (Valea Radimniuta-Valea Cerbului) primarily of dasycladalean-bearing biomicrites with dasyclads preserved in the original micritic matrix.

2.3 Valea Cerbului Limestone Member

This lithostratigraphic unit consists mainly of micrite. The main microfacies type is a dolomitic biomicrite with "filaments" (Pl. 9/7), of thin-shelled bivalve fragments. In addition, foraminifers (including sparse nodosariids), ostracodes, microgastropods, ammonite- and crinoid-frgments can be present. Small amounts of quartz silt are admixed. Coarser-grained intercalations contain quartz and quartzite fragments (Pl. 9/8) up to 10-15%. The Valea Cerbului Limestone Member is a typical slope environment deposit.

3 THE ALGAL-FORAMINIFERAL ASSEMBLAGE: BIOSTRATIGRAPHIC CONSIDERATIONS


The dasycladalean-bearing limestones of the Valea Susara