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Occurrence of *Phymatolithon calcareum* (Pallas) Adey & McKibbin in the Late Miocene of Northwestern Italy

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KEY WORDS – *Corallinales (Rhodophyta), Stratigraphic distribution, Late Miocene, Piedmont.*

ABSTRACT – *The present paper deals with the occurrence of the species Phymatolithon calcareum in an algal assemblage recovered from the Late Miocene (Late Tortonian - Messinian) succession of southern Piedmont (NW Italy). This species, known from Oligocene to Recent, is firstly reported in the Late Miocene.*

RIASSUNTO – [Segnalazione di *Phymatolithon calcareum* (Pallas) Adey & McKibbin nel Miocene Superiore dell'Italia nord-occidentale] – *Viene segnalata la presenza della specie Phymatolithon calcareum in successioni sedimentarie del Miocene superiore. P. calcareum è specie ancora vivente e a lunga ripartizione stratigrafica, distribuita dall'Oligocene al Recente, ma per la quale non erano ancora note segnalazioni per il Miocene Superiore.*

INTRODUCTION

The present paper deals with the occurrence of the species *Phymatolithon calcareum* (Pallas) Adey & McKibbin in an algal assemblage recovered from the Upper Miocene (Upper Tortonian - Messinian) succession of southern Piedmont (NW Italy). Basso *et al.* (1997) discussed the taxonomic position of *Lithothamnion operculatum* (Conti) Conti 1950 and stated that it is an heterotypic synonym of *Phymatolithon calcareum*. As a consequence, the stratigraphic distribution of *Phymatolithon calcareum* is now ranging from the Oligocene to the Recent. However, till now *P. calcareum* was never reported from sediments of Late Miocene age.

The fossil material was obtained from a stratigraphic section exposed near the village of Sant'Alosio (Alessandria, SE Piedmont) and consists of a large number of rhodoliths, free-living thalli and crusts of nongeniculate coralline algae. The section of Sant'Alosio rests on the upper member of the S. Agata Fossili Marls (Tortonian) with a strong angular unconformity and consists, from bottom to top, of fine grained silty sands and silty sandstones with interbedded lenses of dolomitic limestones, silty marls and coarse conglomerates. Within the conglomerates are intercalated sandy and marly lenses, coarse sandstones with interstratified biocalcirudites and bioclastic limestones. Coral fragments, pectinids, gastropods, bryozoans, worm tubes, and red calcareous algae are the main components of the fossil assemblage of the upper level of the section.

For details on the Tortonian and Messinian facies and geologic setting of this area, reference can be made to Sturani (1975) and Ghibaudo *et al.* (1985).

THE ALGAL ASSEMBLAGE OF THE SANT'ALOSIO SECTION

The algal thalli occur in the coating sequence of small rhodoliths, or as free-living thalli, or as crusts. The algal assemblage includes the following species:

- Lithophyllum racemus* (Lamarck) Foslief, 1901
- Spongites albanensis* (Lemoine) Braga, Bosence & Steneck, 1993
- Lithothamnion pentagonum* Conti, 1943
- Phymatolithon calcareum* (Pallas) Adey & McKibbin, 1970
- Titanoderma* cf. *lithoporellaeforme* Conti, 1943
- Titanoderma dublanqui* Lemoine, 1917
- Titanoderma cystoseirae* (Hauck) Woelkerling, Chamberlain & Silva, 1985
- Jania* sp.

The genus *Lithophyllum* seems to be dominant, but *Titanoderma* is also very abundant. It is of note that the free-living thalli are chiefly formed by branching thalli of *Phymatolithon calcareum*.

CONCLUDING REMARKS

The fossil representatives of the species *Phymatolithon calcareum* are reported from the Oligocene of Southern Piedmont (Mastorilli, 1968); the Lower Miocene of Southern Piedmont (Conti, 1943; Piazza, 1989; Vannucci *et al.*, 1993), Central Piedmont (Vannucci, personal observations) and Corse (Bellini & Mastorilli, 1975); the Lower and Middle Miocene of Central Piedmont (Vannucci *et al.*, 1996); the Middle Miocene of Carpathians (Schalekova, 1974), Poland (Studencki, 1988) and Austria (Conti, 1946; Piller, 1994); the Upper

Miocene of Southeastern Piedmont (this note); the Pliocene of Central Piedmont (Vannucci *et al.*, 1994; Vannucci, personal observations) and Southern Spain (Aguirre *et al.*, 1993); the Pleistocene of Pontian islands (Corseili *et al.*, 1994) and Sicily (Di Geronimo *et al.*, 1994).

In conclusion, is possible to confirm that the extant species *Phymatolithon calcareum* is present from the Oligocene to the Recent, than it must be regarded as a long ranging form without any age-diagnostic value.

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EXPLANATION OF PLATE 1

Figs. 1-5 - *Phymatolithon calcareum* (Pallas) Adey & McKibbin, Late Miocene, Sant'Alosio section. (Alessandria, SE Piedmont).

- 1) Asexual sporangial thallus, thin section S 10 II (x 35).
- 2) Peripheral region and conceptacle, thin section S 10 (x 130).
- 3) Detail of conceptacle of Fig. 2, thin section S 10 (x 340).
- 4) Peripheral region and conceptacle, thin section S 10 II (x 52).
- 5) Detail of conceptacle and peripheral region of Fig. 4, thin section S 10 II (x 130).

