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LITHOPHYLLUM IPPOLITOI, A NEW SPECIES OF CORALLINE ALGAE FROM TERTIARY PIEDMONT BASIN

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Riassunto. Viene descritta una nuova specie di Rhodophyceae calcaree della Formazione di Molare del Bacino Terziario del Piemonte, di età oligocenica. Si tratta di una specie di *Lithophyllum* (*Lp. ippolitoi*), che è risultata presente, oltre che nella località di rinvenimento dell'olotipo, anche in un altro settore del Bacino.

Abstract. A new species of the genus *Lithophyllum* (*Lithophyllum ippolitoi*) was discovered in the Oligocene section of Toletto (Molare Formation, Tertiary Piedmont Basin). The holotype overgrows a coral colony, and is characterised by morphological features and dimensions of cells that are clearly different from those of the other recorded species of *Lithophyllum*.

Introduction.

The Ph. D. Thesis research work developed by one of the authors (M.P.) in the Tertiary Piedmont Basin (NW Italy) supplied some algal remains with peculiar morphological and structural features; new data achieved by focused studies allow to identify a new species.

The finding of the same species in a late Oligocene stratigraphic section of the SW areas of the Tertiary Piedmont Basin corroborates the formalization. The studies on this section are in progress.

The holotype comes from the "e" level (see in Piazza, 1989) of Toletto Section (Molare Formation, SE of Ponzone, Alessandria, S Piedmont, NW Italy). This section, 10 m thick, is formed by breccias, conglomerates, sandstones, and reef limestones (mostly framestones). Lithostratigraphic evidences and comparisons indicate a mid-late Oligocene age for this section.

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Systematic descriptions

Genus *Lithophyllum* Philippi, 1837

***Lithophyllum ippolitoi* sp. n.**

Pl. 1, fig. 1-3; Pl. 2, fig. 1-3

1989 *Lithophyllum* sp. 2 Piazza, p. 171.

Derivatio nominis. The species is dedicated to Prof. Felice Ippolito famous Italian Scientist, who improved Earth Sciences in Italy.

Holotype. Coll. Toletto, slide 6V.

Isotypes. Coll. Toletto, slides 6V; 6Va.

Type locality. The holotype comes from the "livello e" of the Toletto Section (Molare Formation). This level outcrops North of the small village of Toletto: elevation 640 m a.s.l., longitude E 3°56'57" and latitude N 44°34'16". It occurs in reef limestone and overgrows a coral colony.

Description. Crustose thallus (440-900 μ thick and up to 4 cm long).

Hypothallus. Well-developed hypothallus (100-200 μ in thickness) with cells measuring (L x H) 10-20 (22) μ x 5-10 μ (mean value 17 μ x 8 μ , number of measures = 30), usually arranged in layers and rarely in irregular rows. The dimensional character of perithallial and hypothallial cells (L = length, H = height, D = diameter) are used according to Woelkerling, 1988.

Perithallus. The perithallus (340-700 μ thick) is homogeneous and close-pocked, and shows light growth zones. Rectangular cells are arranged in rows turning to grating, and measure (L x D) (8) 10-18 μ x 5-10 μ (mean value 13 μ x 7 μ , number of measures = 50).

Reproductive organs. Large, elongate, single-pored conceptacles, 370-1000 μ in inside diameter and 100-200 μ in inside height (mean value 580 μ x 154 μ , number of measure = 20). The chambers usually show concave top, convex bottom with stocky protuberances measuring 30-70 μ in diameter and 30-50 μ in height. The triangular single-pores are long, and range from 40-60 μ in basal width and may attain up to 150 μ high.

Comparisons. As the morphological and structural features of our specimens resemble *Lithophyllum umbilicatum* Mastrorilli, 1968 (p. 362, pl. 36, fig. 1, 2), *Lithophyllum perrandoi* Airoidi, 1932 (p. 71, pl. 10, fig. 7; pl. 11, fig. 1), *Lithophyllum ligusticum* Airoidi, 1932 (p. 72, pl. 11, fig. 2, 3), *Lithophyllum sassellense* Fravega & Vannucci, 1980 (p. 34, pl. 1, fig. 1, 2), we compare it with these forms.

Lithophyllum umbilicatum resembles the new species by the similar shape of conceptacles, but it differs by the arrangement of hypothallial cells (mostly in rows) and perithallial cells (mostly in layers). Perithallial cells have also smaller maximum length (L: 9-12 μ).

Lithophyllum perrandoi, *Lithophyllum ligusticum*, and *Lithophyllum sassellense* resemble the new species only by thallus growth morphology, hypothallial cells arrangement, and conceptacle dimensions, but they differ by every other morphological and dimensional character.

Remarks. The level ("livello e") which the new species comes from, consists of 1.5 m of framestones with lenticular bodies of coarse, grain-supported sandstone. Sandstones show sparry calcite cement (rarely lime mud matrix in smaller areas) and very low porosity. Coarse and well-rounded grains of serpentinite, calcschist, quartzite, quartz, mica, Fe-oxide, pyrite, and spheroidal aggregates of microcrystalline glauconite form the abundant silicoclastic skeletal fraction. Coral and serpulid fragments, bryozoans, foraminifers, and coralline algae thalli are present as bioclastic skeletal fraction. Miliolids, textulariids, and rotaliids are the most abundant forms of foraminifers.

The algal assemblage of the sandstone bodies includes (Piazza, 1989): "*Lithothamnium*" *undulatum* Capeder, 1900; "*Lithothamnium*" cf. *exuberans* Mastroianni, 1968; *Mesophyllum* cf. *koritzae* Lemoine, 1924; *Lithophyllum* cf. *mengaudi* Lemoine, 1934. The name *Lithothamnium* is written with quotation marks because is not valid (see in Woelkerling, 1988), but the revision of the species referred to this genus is largely incomplete. Thus we prefer to use the old name rather than ascribe "tout-court" all species to the revised genus *Lithothamnion*.

Laminar, massive, and hemispherical coral colonies mainly referable to *Agathiphyllia rochetti* (Michelin, 1842), *Antiguastrea lucasiana* (Defrance, 1826), and *Hexastrea* sp. form the framestones [species positive identifications are based on illustrations and descriptions given by Pfister (1977, 1980, 1985) and Frost (1981)]. The new species is the only algal content of this reef limestone.

Stratigraphic distribution. Oligocene.

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PLATE 1

Fig. 1-3 - *Lithophyllum ippolitoi* sp. n., Toletto Section, e level, holotype, 6V. 1) Section across the thallus; x 50; 2) detail of an incomplete hypothallus and perithallus; x 300; 3) detail of conceptacles; x 120.

PLATE 2

Fig. 1-3 - *Lithophyllum ippolitoi* sp. n., Toletto Section, e level, isotype, 6Va. 1) Section across the thallus; x 40; 2) detail of hypothallus and perithallus; x 200; 3) detail of conceptacles; x 80.



