FURCATE SEPTAL INCREASE OF A TRIASSIC CORAL

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Textbook models of septal increase in Recent and fossil Scleractinia typically show simple and straight septa that appear in skeletal ontogeny as consecutive cycles.

In some corals, higher-cycle septa merge with septa of lower cycles to form characteristic colitas (e.g., Calicocyathus).

In some corals, septa can be reduced to spines as in stiliphyllids or polypoloids. Septa may reach the coralum center or be restricted to the peripheral zone; their edges can be free or merged with other septa or columnella to form an axial structure.

In microbacinids that have completely eroded calices, septa grow concentrically and increase of higher septal cycles has been interpreted as successive bifurcations of lower-cycle septa in the peripheral zone of coralum.

Herein, we redescribe a Triassic (Middle Carnian) coral with very unorthodox septal increase based on new material from Italian Dolomites.

The coral, originally described as Montlivaltia septifera by Voiz (1896), shows in the higher part of the coralum, septa that are repeated and centripetally. This results in formation of septal sets composed of 3-10 blades ("septal brooms"). Such multiple branching affects at least 52 septa that originate as single blades at the calicular periphery.

Three to six shorter non-branching septa regularly intercalate with the "septal brooms". Each "septal broom" has a unique branching pattern, however, remarkably, distances between adjacent branches and septa are equal. Only some septa branch earlier in ontogeny (as observed in more proximal preserved part of the coralum) suggesting that septal branching is late ontogeny phenomenon.

There are no Triassic corals showing similar septal increase to "M" septifera. However, certain analogy reveals some post-Triassic fossil and Recent corals.

Cretaceous asteroporids (e.g., Pseudasteria, Trochiodendona, e.g., Tamarina) develop long protrusions on septal faces. In Tamarina, and few other taxa those protrusions occur on faces of thick and well developed septa hence can be considered "ornamentation" instead of being equiangular septal branches as in the Triassic form.

In the asteroporids and Trochiodendona however, such structures transform into septa of new corals that can develop in the original septal spaces.

Euplectonella septal branches have been observed in few specimens of Recent stiliphyllid "Tubiphyllus Trenobygallum Alcock", 1903, however, only the primary septa, which split only once dichotomously. Specimens with septal branching behaviour are extremely rare in population of T. Trenobygallum that may suggest tectological stimulus (however, typical traces of coral intruders have not been detected).

On the other hand, in some "healthy" morphotypes of Montlivaltia concastrata Linnéus, 1758 septa in distal parts of corallite can be significantly reduced and develop several, chaotically distributed septals.

The above examples clearly show that coral septa may differ significantly from the "orthodox" textbook models, however, none of these is fully comparable with the septal extravagancia of the Triassic "M" septifera.

Observations that there are many "extravagant" Triassic corals (e.g., Styliphyllum patriarchum Frech, 1890, Gigantostylus doegous Frech, 1890, etc.), just at the beginning of the mass appearance of Scleractinia in the fossil record, raise questions: do they evidence very wide range of the Triassic corals, or rather diverse skeletalogenetic and growth strategies inherited by Triassic corals from the Palaeozoic scleractinomorphs?