

**REFINED SPECIES CONCEPT OF THE STROMATOPOROID  
*ACTINOSTROMA VERRUCOSUM* (GOLDFUSS 1826)  
– SYSTEMATICAL AND ECOLOGICAL IMPLICATIONS.**

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Based on specimen collected in several outcrops of Lower Givetian reefal deposits in the Eifel Hills (Germany), this study provides new distinctive details of the skeleton of *Actinostroma verrucosum* (Goldfuss) improving the understanding of the systematic position of the species. Furthermore by tracing variability of individuals that thrived in different environments the response of skeletal organization evidenced that the mamelons, often times regarded as a diagnostic feature of this species, might in fact be facultatively developed under low current conditions in order to enhance passive water flow in the filter feeding system and additionally preventing an easy covering by mud.

In brief a stromatoporoid skeleton is made of horizontal and vertical elements. In general they are referred to as laminae and pillars and occur with a wide variety of properties. Nature, arrangement and morphometric data of these internal elements are essential for generic and specific assessment.

*Actinostroma* is characterized by reduction of laminae to rod-shaped elements, named colliculi. Typically colliculi are of similar size, laterally persistent and alligned. In tangential section they connect neighbouring pillars producing a regular polygonal network, referred to as hexactinellid pattern. The pillars are rod-shaped too, they appear to be continuous through many interlaminar spaces.

In contrast skeletal elements of *Actinostroma verrucosum* (Goldfuss) are of a less simple sort. Some laminae are broadened reflecting a complex internal structure (cf. Lecompte 1951), often pillars are v-shaped and confined to only one interlaminar space. Stearn et al. (1999) address this issue underlining the complex arrangement of colliculi, collocating the species peripheral but within the genus. Though they consider the possibility to propose a new genus based on this properties.

As shown now by some very well preserved specimen, the origin of complex laminae is given by two types of colliculi. One type of normal size connecting the pillars, the other much smaller with intersections independent of the pillars. If those colliculi form an angle with the horizontal plane, defined by the first type colliculi, the result is thickening of the whole laminar structure.

The dimensions of the second type colliculi are comparable to those of the microcolliculi encountered in some genera placed in the order Actinostromatida (e.g. *Densastroma*). These Silurian forms are phylogenetical linked with *Actinostroma* (cf. Stock 1994). The occurrence of microcolliculi in the typical Middle Devonian *A. verrucosum* is quite remarkable. Since similar features are displayed by *Actinostroma stellulatum* (Nicholson), it might be deduced that a possible new genus includes both species groups.

## References

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