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TAXONOMIC STUDY OF CORALS (ORDERS SCLERACTINIA; FAMILY AGARICIIDAE GRAY, 1847) DEPOSITED IN ZOOLOGICAL MUSEUM OF UNIVERSITY OF KARACHI

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ABSTRACT

Three species of scleractinian corals *Agaricia tenuifolia* Dana, 1848, *Agaricia agaricites* (Linnaeus, 1758) and *Pavonadecussata* (Dana, 1846) of the family Agariciidae Gray, 1847 were originally collected by Mr. James A. Murray (Curator and Zoologist at Victoria Museum, Karachi) in 1880 from Indian Ocean, Persian Gulf and Arabian Sea.These specimens were present in the Victoria Museum, Frere Hall, Karachi before 1952. Currently, these collections are kept in Zoological Museum of the University of Karachi. The present study deals with the detailed taxonomical description of the Agariciid corals. Species are compared with standard literature and the keys.

Key words: Taxonomy, Scleractinian, Agariciidae, Zoological Museum, Karachi University, Pakistan.

INTRODUCTION

Family Agariciidae belongs to the order Scleractinia of the phylum Cnidaria. According to Fricke *et al.*, (1987) species of this family are found in shallow-water corals reefs and some species are reported from deep water about 100m and are responsible for reef building corals in Caribbean and Pacific Ocean (Wells 1956).This family consist of 47 species under 7 genera (Veron, 2000; Licuanan and Alino, 2009). Agaricia and Pavona are restricted in the Western Atlantic while these genera alsooccur in the Indo-Pacific Ocean (Marcelo *et al.*, 2012). Members of Agariciidae are mostly colonial. Colony formation usually takes place by intratentacular or circumoral budding. The corallites are often borne on ribs. The corallite wall which usually absent, is formed from synapticulae. The septa are commonly solid, formed from a single fan system composed of trabe-culae. A columella is absent; oritisis derived from the synapticula (Marcelo *et al.*, 2012). Some of the quantitative data on the Agariciidae has been provided by earlier workers. Vaughan, (1907, 1918), Verrill, (1901), Wells (1973, 1954), Yabe and Sugiyama (1935, 1941), Yabe *et al.*, (1936), Nemenzo (1955), Roos (1971), Smith (1971), York (1971), Zou (1975), Erhardt and Meincl (1975), Werding and Erhardt (1976), Colin (1978), Veron and Pichon (1980), Scheer and Pillai (1983), Veron and Kelley (1988), Sheppard and Sheppard (1991), Raza (2013). The present publication aims to extend the knowledge of the number of genera and species of Agrariciidae present in Zoological Museum of the University of Karachi.

MATERIAL AND METHODS

The relevant collection already present in Zoological Museum of Karachi University, which was made by James A. Murry from Arabian Sea, Indian Ocean and Persian Gulf in 1880 and is deposited in Zoological Museum of the University of Karachi. The specimens were examined for detailed morphological characters for taxonomic study. The samples were identified on the basis of their taxonomic diagnostic characters, confirmed and compared with the catalogue (Vaughan, 1918), literature and standard keys. The identified specimens are kept in Zoology Museum, Department of Zoology, University of Karachi.

RESULTS

SYSTEMATIC DESCRIPTION

Phylum: Cnidaria
Class: Anthozoa

Subclass: ZoanthariadeBlainville,1830
Order: ScleractiniaBourne, 1905
Family: Agariciidae Gray, 1847

Colonies massive, laminar or foliaceous, colonial and encrusting; corallites are immersed with poorly defined walls formed by thickening of septo-costae; septa fused, continuous between adjacent corallites; corallites on the outer margin of the colony, intracalicular budding of mature corallites along serial rows, along with lacking coenosteum that separates corallite serials, an unusual set of symmetries, corallites and most of their skeleton consisting of coenosteum; colline regularly inclined towards the corallum edge.

***Agaricia* Lamarck 1801**

Type species *Madrepora undata* Ellis & Solander, 1786

Colonies foliaceous tin- walled, encrusing, semi-massive; vertical crests or fronds with calices on one or both sides; corallites crowded with shared wall; calices rounded, polygonal, oval, 2-5 mm in diameter; septa visibale but closely packed and radiate from the calice center in fine lines; septa cycles with thick and tin; septal margins smooth or minute dented, merge with those of adjacent corallites and thus donot represent real septo-cosate; columella weakly developed.

***Agaricia tenuifolia* Dana, 1848**

Agaricia agaricites York, 1971
Agaricia tenuifolia Wells 1973: Erhardt & Meincl (1975); Werding & Erhardt (1976); Colin (1978)

Corallum skeleton forms the bulk of the with flat, thin, upright plates, the thin leaf lettuce, elongated; corallum bifacial, corallites are thin; valleys short valleys concentric and less than 50 millimeters, arranged in rows separated by ridges; collines prominent; columella small.

Distribution: Weston Atlantic, Indian Ocean.

***Agaricia agaricites* (Linnaeus, 1758)**

*Agaricia crassa*Verrill, 1901
Mycedia gibbosa Dana, 1846
Madrepora agaricites Linnaeus, 1758,
*Agaricia agaricite.*Verrill, (1901) Roos (1971); Smith (1971); York (1971); Wells, (1973); Colin (1978)

Corallum massive and encrusting; thick and flat submassive, convex, flat with thick imbricated, vertical, bifacial lobes; Up to 1 mm in diameter; cerioid to meandroid composed of erect fronds 5 to 20mm long, valleys are discontinuous with 4 to 5 centers per; corallites were arranged in parallel groups, (bifacials); calices 1.5-3.0 mm in diameter, arranged in reticulate apattern or in rows of up to 20; 3-7 calices/cm. septa numbered from 30 to 33; columella small.

Distribution: Weston Atlantic
***Pavona* Lamarck, 1801**

Type species: *Madrepora cristata* Ellis and Solander, 1786

Colonies are massive, submassive, encrusting, laminar or foliose; with two-sided laminae; corallites small usually with a central columella, sometime separated by ridges; corallite wall is poorly developed or absent, inter connected by septo-costae; corallites 0.5 to 3.0 mm.

Pavona decussata (Dana, 1846)

Agaricia decussata Dana, 1846
Pavonia seriata Brüggemann, 1879,
Pavonia crassa Dana, 1846,

Pavonia decussata Dana, 1846,
Pavonia crassaascia Dana, 1846
Pavonia crassaloculata Dana, 1846,
Pavonia crassaobtusa Dana, 1846.
Pavona decussata (Dana): Veron & Pichon (1980); Veron & Kelley (1988); Sheppard & Sheppard (1991).

Corallum foliose, vertical laminae; laminae 2-4 mm thick at the margin and more than 8 mm at the base; lateral surfaces of laminae smooth, laminae margins slightly wavy; corallites 3-4 mm in diameter, some of them are grouped in rows, consisting of 3-8 corallites, sub parallel to the lamina margin; corallite wall is poorly developed or absent; septocostae ranged in three-four orders, first order septa (up to 12) straight, thin, weakly, ornamented with pointed spines on lateral surfaces; distal margin is horizontal, sharp, dentate, proximal margins almost reach the columella, vertically descend to the bottom of the fossa; second order septa (up to 11) distinguished by their shorter length, their internal margins are at a greater distance from the corallite axis, descend to the bottom of the calicular depression, thickness, height and degree of ornamentation, the same as in septa of the first order; third order septa significantly lower and shorter than first order septa, thin, laminae-like, without ornamentation, and with a thin sharp margin; fourth order septa very short, rudimentary, with rarely more than two to three in large corallites, internal septal margins are not fused; fossa deep, round or oval, and 0.5-1 mm wide; columella in the form of a granule or a short spine; plali form is formed of merged radial elements at its base.

Distribution: the entire tropical zone of the Indo-Pacific

DISCUSSION

In the present study, 3 species and 2 genera belonging to the family Agariciidae of the order Scleractinian corals present in Zoological Museum of Karachi University (James A. Murray collection) have been identified and described. The studies were compared with comprehensive literature of previous research such as 38 species of hard corals were reported from Ceycen Island, Colombia (Erhardt and Meinel, 1975). Corals of the World (Veron, 2000), outline of the classification of scleractinian of Arabic, Indo-pacific and a few Atlantic genera (Kleemann, 2001) and 51 species among 39 genera were reported from Indian Ocean, Persian Gulf and Arabian Sea (Raza, 2013). It was found that the three existing species under study matched with those reported by the authors cited.

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