



<http://dx.doi.org/10.11646/zootaxa.3780.2.10>

<http://zoobank.org/urn:lsid:zoobank.org:pub:F42C1553-10B0-428B-863E-DCA8AC35CA44>

***Pempheris bexillon*, a new species of sweeper (Teleostei: Pempheridae) from the Western Indian Ocean**

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Abstract

Pempheris bexillon new species is described from the 129 mm SL holotype and 11 paratypes (119–141 mm SL) from the Comoro Islands. Twelve other specimens have been examined from the Agaléga Islands, Mascarene Islands, and Bassas da India (Madagascar). It is differentiated from other *Pempheris* by the following combination of characters: a yellow dorsal fin with a black, distal margin along its full length, broadest on anterior rays (pupil-diameter width) and gradually narrowing posteriorly, the last ray with only a black tip; large, deciduous cycloid scales on the flank; dark, oblong spot on the pectoral-fin base; anal fin with a dark margin; segmented anal-fin rays 38–45 (usually >40); lateral-line scales 56–65; and total gill rakers on the first arch 31–35; iris reddish-brown. Tables of standard meristic and color data for type material of all nominal species of cycloid-scaled *Pempheris* in the Indo-Pacific are provided.

Key words: taxonomy, Comoro Islands, meristics, comparative type data, *Pempheris nesogallica* Cuvier

Introduction

The genus *Pempheris* Cuvier comprises 44 nominal species of which perhaps 25 are valid, although a complete revision has yet to be undertaken (43 as listed in Eschmeyer 2014 with the addition of *P. flavicycla* Randall *et al.* 2013). The species are found on rocky and coral reefs of the tropical and temperate Indo-Pacific and western Atlantic Oceans to depths of about 100 m. They are medium-sized fishes (<200 mm SL) characterized by large eyes, strongly compressed body, a single, short dorsal fin, a long anal fin (>27 segmented rays), and a lateral line extending to the end of the middle rays of the caudal fin. During the day they are frequently found in aggregations under ledges or in caves. Despite their ubiquity, the taxonomy of this genus has long been problematic. Species are superficially very similar and are not easily separable by traditional counts; early workers produced copious synonyms or descriptions that lacked sufficient detail to differentiate species. For these reasons, along with poor quality type material and no modern revision available, later workers (including ourselves) have made identifications or suggested synonymies based on very little evidence and/or on previous literature (e.g. Fowler 1928, 1931, 1949; Herre 1953, Randall 1983, Heemstra 1986, Randall 1995, Mooi & Jubb 1996). As a result, faunal reviews are unlikely to accurately reflect the *Pempheris* species actually present.

Although specific identification is frequently difficult, several species groups can be recognized by morphology and color. There are two general groupings based on the presence of either adherent ctenoid or deciduous cycloid (or very weakly ctenoid) scales on the flank; these are phenetic groupings, as the ctenoid-scaled group is likely paraphyletic (unpublished data, RDM). Of the ctenoid-scaled taxa, only a few western Australian species range into the Eastern Indian Ocean (Mooi & Jubb 1996); none are known to occur in the Western Indian Ocean. The remaining cycloid-scaled species can be grouped by the presence or absence of a distinct, roughly oval, black spot covering the base of the pectoral fin. Among those with a basal pectoral-fin spot, we have found specimens from the Comoro and Mascarene Islands of the Western Indian Ocean that exhibit a distinctive dorsal-fin color. We describe this species and provide some basic descriptive characters for available types of the nominal species of cycloid-scaled *Pempheris* of the Indo-Pacific for future reference (Tables 1, 2).

Remarks. The cycloid-scaled species of the genus *Pempheris* have proven a challenge taxonomically. It is enormously difficult to assign original names to modern specimens because most of the type material is in relatively poor condition and the descriptions are generally brief and do not take note of features considered important for identification today. Traditional meristics can be useful in dividing taxa into species groups, but tend not to be informative at the species level because they are at either of the extremes of being too variable (e.g., anal-fin ray and lateral-line scale counts) or too conservative (e.g. pectoral-fin ray and dorsal-fin ray counts). Gill-raker counts on the first arch are useful, but have not been reported consistently. Color patterns can be useful, but are not always maintained in preserved specimens. As a result, most faunal compilations are not reliable for determining species distributions. Tables 1 and 2 provide summaries of some of the meristic and color features of the types of nominal species of Indo-Pacific cycloid-scaled species. This will prove to be a useful reference for future taxonomic work. Discovering a species such as *P. bexillon* that exhibits both meristic and color characteristics that are so clearly diagnostic is an exception within this genus.

Acknowledgements

We are indebted to all the many staff at the institutions listed in this paper for providing access to type material and comparative specimens over many years; despite being too numerous to mention, you are all much appreciated. P.C. and E. Heemstra provided access to and permitted use of the photographs in Figures 1 and 2. Special thanks are due to M. Rogers and K. Swagel (FMNH) for use of the X-ray unit and dark room under their care, J. Peterson (MPM) for photographic services, T. Ehlinger (University of Wisconsin–Milwaukee) for use of computer image analysis equipment, and B. Torreano for assistance in the laboratory. This work is based in part upon research supported by the National Science Foundation under Grant No. DEB-9317695 to RDM.

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