

Morphology of the sagittal otoliths of *Ariomma brevimanum* and *Ariomma indicum*

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The family Ariommatidae has only one genus *Ariomma* Jordan & Snyder, 1904 and 7 valid species (Froese and Pauly, 2018) which is grouped into two, as deep bodied or elongated type species based on the body shape (Ajiad and Mahasneh, 1986). Of the seven species of *Ariomma* so far described, two species *Ariomma indicum* (Day, 1871) with widespread distribution in

Indian EEZ and *Ariomma brevimanum* (Klunzinger, 1884), recently reported occur in Indian waters. The two species can be easily identified based on general body profile with *A. indicum* having a deeper body (body depth 40-46% of standard length) and *A. brevimanum* having long and slender body (body depth <26% of standard length).



Fig. 1. *A. brevimanum* of 605 mm standard length (a) and *A. indicum* of 142 mm standard length (b) recorded from landings in Cochin Fisheries Harbour.

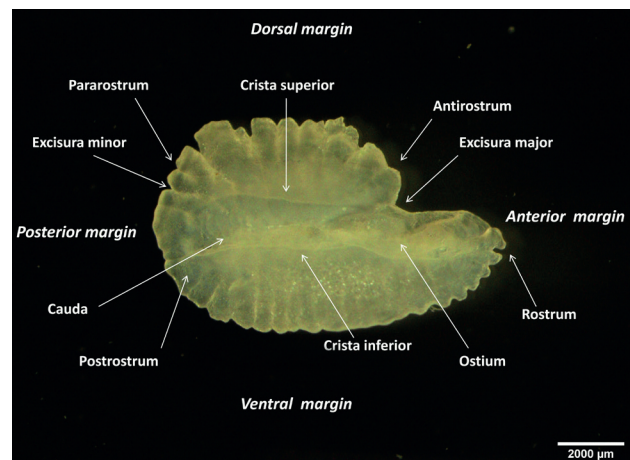
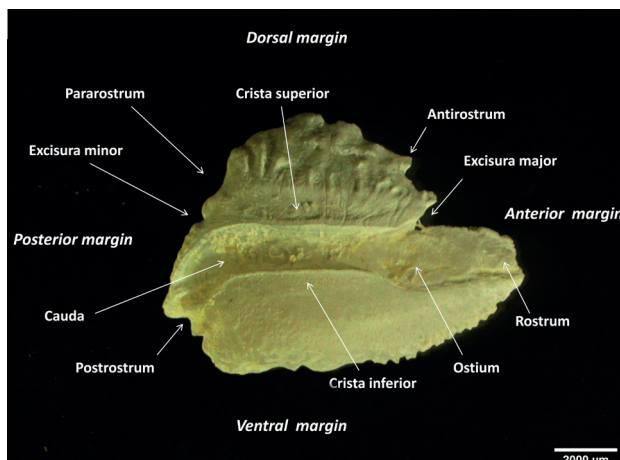


Fig. 2. Sagittal otolith of (a) *Ariomma brevimanum* (605 mm SL) and (b) *Ariomma indicum* (142 mm SL)

Otolith morphology, especially of sagittal otolith has been used in various fish taxonomic studies and investigations on age, growth, feeding habits, and stock identification in fishes. The variations in the shape of the sagitta otolith are species specific (Paxton, 2000) and efforts to document the otolith shapes of several fishes are in progress globally. Otoliths were extracted using "up through the gills method" (Secor *et al.* 1991), cleaned gently with fresh water, air dried, and then stored in labelled 10 ml glass vials. Images of medial face of the otoliths were captured using a stereo microscope (Nikon SMZ1270). The left and right sagittal otoliths of each species were similar in gross morphology and shape. The otolith shape of *A. brevimanum* was found to be somewhat rounded whereas in *A. indicum* it was relatively elongate. The rostrum was prominent and relatively

longer in *A. indicum*. The otolith of both the species was heterosulcoid with crista superior and crista inferior running parallel to each other and bending ventrally at the posterior end. The dorsal margin in both the species were round but differences were observed in ventral and posterior profile (Fig. 2). Pointed antirostrum was observed in *A. brevimanum* unlike the gradually sloping shape in *A. indicum*. Otolith shape analysis is becoming an increasingly popular tool in fish taxonomy studies. Hence the present study used comparison of the otolith shape of two ariommatids from Indian waters collected as part of a species based sagittal otolith shape and morphology database, that can be used in fish taxonomy studies for species confirmation and diet composition studies to identify the possible prey to species level based on digested food materials in fish guts.