

## *Cocotropus hongkongiensis*, a New Species of the Aploactidae from Hong Kong\*

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*Cocotropus* KAUP, 1858, is a small genus of considerably uncommon shore fishes of the Indo-Pacific. As far as is known, no attempt has ever been made to revise its species systematically. According to MATSUBARA (1943b) in his study of the Japanese forms and DAY (1878-88) on the typical and Indian species, it is distinguished, among other characters, primarily by having stout and blunt spines to the preorbital and preopercle, and a ventral fin with one spine and three rays. Based on this diagnosis, a number of seven distinct species may be recognised from existing literature: *C. echinatus* (CANTOR) and *C. roseus* DAY from India; *C. monacanthus* (GILCHRIST) from east coast of South Africa; *C. dermacanthus* (BLEEKER) and *C. obbesi* WEBER from the Philippines; and *C. masudai* MATSUBARA and *C. kagoshimensis* MATSUBARA from Japan. In the present study an eighth species, *C. hongkongiensis*, is here proposed as new.

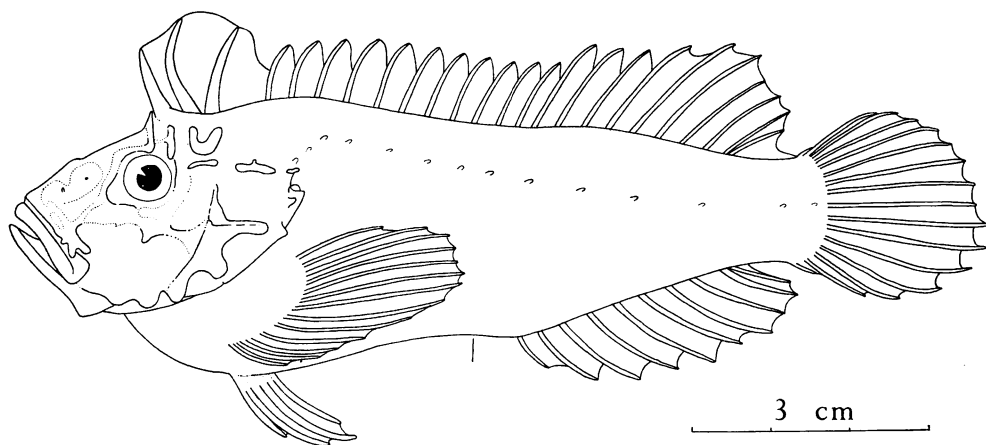
*Cocotropus hongkongiensis* sp. nov.

Fig. 1.

*Holotype*.—BMNH 1965.11.6.4, a male 96.5 mm in standard length, collected by J. D. BROMHALL with rotenone on 27-VII-65 from the west shore of Sharp Island, inside of Port Shelter, Hong Kong; depth of water ranging from 2 to 7 feet; bottom of shore composing of rocks, boulders, scattered patches of algae and sand.

*Diagnosis*.—A scorpaenoid fish of the family Aploactidae. Scales entirely absent, everywhere with small and large prickles. Head compressed with a long snout, its length  $2\frac{1}{2}$  times as long as diameter of eye; upper jaw short, its posterior end far in front of a vertical through anterior border of eye (fleshy); eye small, almost equidistant between tip of snout and end of opercular flap, located directly above 2nd preopercular spine (from anteriormost). Cranium with high bony ridges: frontal ridges of both sides parallel anteriorly, but diverging posteriorly and postero-distally forming a transverse ridge across hind part of interorbital space, thus encircling a deep and round depression; supraocular ridge about as high as frontal ridge; a U-shaped parietal ridge below 2nd and 3rd dorsal spines. Preorbital with two pairs

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of spines: an anterior pair of short, flat, round-tipped spinules, the first of which indiscernible beneath skin; a ventral pair of longer but also round-tipped spines, anterior one flat, while posterior one with a median ridge along its length. Angular forming a very distinct, triangular projection to ventral profile of head below end of upper jaw. Body with a deep pit at base of 3rd dorsal spine; thoracic region expanded, wide, deep. All rays on fins simple. Dorsal XII, 11; first three spines stout, flattened antero-posteriorly, and separated from and longer than following spines; second spine longest, curving backward. Anal I, 8. Ventral I, 3. Caudal 16. Lateral-line tubercles 13. Colour pattern consisting of dark brown blotches superimposed upon an olive-brown ground colour; dorsal with a basal band of dark brown.

*Relationships.*—At a glance, *C. hongkongiensis* can readily be distinguished from all known species of *Cocotropus* by its long snout, short upper jaw, small eye, the distinctly projecting angular, and the colour pattern. The expanded, wide and deep thorax, and the bony ridges of the cranium noted in the *diagnosis*, are also very distinctive.

Of the seven known species, *C. hongkongiensis* is probably more related to *C. obbesi* (WEBER, 1913) in having a high number of caudal rays (15 in *C. obbesi*, less than 15 in others), the presence of a dark spot between the last two dorsal rays, and the general appearance of the fins. It is desirable to note that *C. monacanthus*, *C. masudai*, and *C. kagoshimensis* resemble the present species in having only a single anal spine, and that the records of two anal spines in other known species may, perhaps, be miscounts, since all spines and rays of the fins are encased by skin.

*Description.*—D XII, 11; A I, 8; P 13; V I, 3; C 16. First branchial arch with 2+6 short gill rakers. Branchiostegal rays 6. Lateral line with 13 tubercles.

The following measurements are expressed as percentages of the standard length. Greatest depth at ventral origin 36.4; least depth of caudal peduncle 13.5. Head 37.5; snout in front of eye (fleshy) 15.1; eye diameter (not bony) 6.8; upper jaw 13.5; postorbital distance 21.3; interorbital width 9.9. Predorsal distance 21.3; preanal distance 7.0; prepectoral distance 37.4; preventral distance 36.4. Dorsal base 76.4; longest spine (2nd) 13.5; shortest spine (4th) 8.3; longest ray (6th, 7th or 8th) 16.1; shortest ray (1st) 9.8. Anal base 28.1; 1st spine 5.7; longest ray (5th or 6th) 14.8; shortest ray (8th; posterior branch) 10.4. Caudal from mid-point of caudal base to tips of median rays 23.9. Pectoral from origin of uppermost ray to tip of fin 36.4. Ventral from origin of spine to tip of fin 23.7.

Scales entirely absent, everywhere covered by prickles. Prickles on body mostly small, bulb-like basally and pointed distally; those on fins of various sizes, larger ones each with several pointed tips. Largest prickles found on first three dorsal spines, each of which with three enlarged, wart-like projections. Opening of each lateral-line pore being in middle of a large wart-like projection with a number of pointed tips.

Body moderately slender, compressed; thorax expanded, wide, deep. Spines and rays of fins more or less encased by skin. Membrane connecting 1st, 2nd and 3rd dorsal spines to their tips; outer margin of this section of membrane very finely fimbriated, while that between 2nd and 3rd spines forming a smoothly convex profile; tiny prickles present on membrane of entire fin, mostly arranged in a serial order; prickles along each spine and ray larger than those on fin membrane. Anal with tiny prickles arranged serially throughout whole fin; enlarged prickles along each spine or ray absent; posterior branch of last ray joined to caudal peduncle by a narrow membrane. Caudal fan-like with a round margin; tiny prickles arranged serially throughout entire fin; enlarged prickles along each spine or ray absent. Pectoral with a round border distally; prickles on membrane minute, arranged serially; enlarged prickles present along each of 6 uppermost rays. Ventral about equal to caudal; tiny prickles arranged serially throughout entire fin; enlarged prickles along each spine or ray absent.

Head compressed, anteriorly profile forming a 85° angle at tips of jaws. Gill membrane completely free from isthmus. Last gill arch without an opening. Preorbital twice as long as wide, its surface with 5 distinct radiating ridges; anterior border with a pair of short, round-tipped, flattened spinules: upper one shorter and inconspicuous when covered by skin, while lower one somewhat longer and forming a small knob-like projection beneath skin; ventral border with a pair of larger projections: anterior one flat and round-tipped, while posterior one more slender and dorsally ridged along its length.

Divisions of suborbitals cannot be distinguished without staining. As a whole, suborbitals forming a very slender, elongate bone of 12.5 mm in length and 2.8 mm

in width at its mid-section; superficially this bone with ridges and deep, wide depressions; a short spinule some 3 mm behind anterior end of bone on ventral border; latero-ventrally at posterior third of bone, a pair of low and knob-like projections present; numerous grooves and ridges present superficially on entire posterior third of bone.

Submarginal ridge of preopercle forming a high knob at base of uppermost preopercular spine; from this knob a ridge branching from submarginal ridge running along entire uppermost spine; hind border of preopercle with 5 blunt spines, all flat and wide, excepting uppermost one with a triangular cross-section. Opercle with a pair of short, blunt spines. Interopercle 18 mm in length, 2.5 mm in width at its mid-section (this being most narrow part); its greater part concealed by preopercle, with a small portion exposed between 2nd and 3rd (from uppermost) preopercular spines; its anterior end connected with angular by means of a tough ligament.

Upper jaw protractile, anteriorly bordered by a wide premaxillary; maxillary somewhat truncate posteriorly, with a low median ridge and a hind edge slightly curving upward. Tip of lower jaw not noticeably in front of that of upper jaw when mouth being closed; dentary posteriorly wide, anteriorly very slender; articular with a posterior cup-shaped trough to receive quadrate, and a somewhat horizontal ridge along its mid-section, such that a deep and wide depression present on both sides of this ridge; angular present as a small piece of bone connected with lower surface of articular as a very distinct knob-like projection from ventral profile of head. Teeth villiform, arranged in a band in each jaw, a narrow streak on vomer, but none on palatine.

Divisions of hyoid bones cannot be distinguished without staining. Six branchiostegal rays articulating with this hyoid apparatus; 1st (or uppermost), 2nd and 3rd rays expanded basally, forming a round tipped, triangular forward projection; 4th and 5th rays shaped similarly as preceding rays, but with a much more produced anterior projection; 6th ray from base to tip very slender, without a basal expansion as in preceding rays.

Cranium thick, strong, with a number of bony ridges. Frontal ridges high, posteriorly diverging and forming a transverse ridge across hind part of interorbital space immediately in front of 1st dorsal spine; anteriorly frontal ridges somewhat close and parallel to each other, thus forming a deep and narrow groove between. Supraocular ridge of each side almost as high as frontal ridge. A horizontal series of three short but very prominent ridges from eye to below first lateral-line tubercle. Parietal ridge present as a considerably large U-shaped ridge, located above first short ridge behind eye noted above, or below 3rd dorsal spine.

*Colour pattern in life.*—General ground colour of a dark olive-brown, superimposed by a number of deep-brown blotches: a large one below posterior dorsal spines; an

elongate one across lateral line from middle of soft dorsal to posterior rays of anal; a round one at end of caudal peduncle; a fairly large one occupying almost whole of upper part of opercle; a very large and intense one at membrane of first three dorsal spines. Dorsal with a dark-brown basal band, and a blackish brown spot between last two rays; rest of fin mottled with dusky brown. Anal mottled with dusky brown. Dusky brown mottling on caudal forming vertical series of small dark blotches. Pectoral with dusky brown mottling. Ventral devoid of mottling.

*Notes.*—The holotype was found within a crevice between two large boulders in the deeper part of the poisoning station. When first brought out of the water, its body was covered with what appeared as algae, which came off the skin when scrubbed with a brush.

A total number of thirty-one species comprising fourteen families of fishes have been collected from the station. The most dominant species are *Siganus fuscescens* (HOULTUYN) and *Entomacrodus lighti* (HERRE). The labrid *Duymaeria flagellifera* (VALENCIENNES) and the scorpaenid *Sebasticus marmoratus* (CUVIER) are also found to occur in considerably large numbers. As is true elsewhere in this Port Shelter region, these fishes are the more dominant fishes in rocky habitats where there is a growth of algae.

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