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**CLYPEASTEROPHILUS, A NEW GENUS TO RECEIVE THE
SMALL-PALPED SPECIES OF THE DISSODACTYLUS
COMPLEX (BRACHYURA: PINNOTHERIDAE)**

Ernesto Campos and Hugh Griffith

ABSTRACT

Clypeasterophilus, new genus, is erected to receive 4 species currently assigned to *Dissodactylus* Smith, 1870: *D. rugatus* Bouvier, 1917; *D. juvenilis* Bouvier, 1917; *D. stebbingi* Rathbun, 1918; and *D. ususfructus* Griffith, 1987. The new genus is characterized by (1) the continuous anterolateral margins of the carapace, (2) the palp of the third maxilliped slender and shorter than widest point of the ischium-merus, (3) the male telson subpentagonal, and (4) gonopods that narrow abruptly at their tips. *Clypeasterophilus* is an exclusive symbiont of irregular echinoids of the genus *Clypeaster*.

RESUMEN

Un nuevo género de cangrejo pinotérico, *Clypeasterophilus*, es nombrado para recibir a 4 especies actualmente asignadas al género *Dissodactylus* Smith, 1870: *D. rugatus* Bouvier, 1917; *D. juvenilis* Bouvier, 1917; *D. stebbingi* Rathbun, 1918; y *D. ususfructus* Griffith, 1987. El nuevo género se caracteriza porque (1) los márgenes del caparazón son continuos, (2) el palpo del tercer maxilipedio es delgado y más corto que el punto más ancho de la articulación isquiomeral, (3) el telson del macho subpentagonal, y (4) los gonópodos que se agudizan abruptamente en la punta. *Clypeasterophilus* es un ectosimbionte exclusivo de equinoideos irregulares del género *Clypeaster*.

The genus *Dissodactylus* traditionally has been defined by its ectosymbiotic relationships with irregular echinoids and the possession of bifid dactyli on the walking legs (Smith, 1870; Bouvier, 1917; Rathbun, 1918; Williams, 1965; Griffith, 1987b) (Figs. 1D, 2D). Apart from the latter trait, which is recognized as a synapomorphy for all species, the taxonomic significance of morphological diversity within the genus has remained unexamined. Recently one of us (Griffith, 1987a), in a detailed phylogenetic study of *Dissodactylus*, provided several synapomorphies that are now reevaluated to suggest the erection of a new genus, which was previously recognized as the *brevipalpus* group of the *Dissodactylus* complex (Campos-González, 1988).

An extensive discussion of the taxonomy, distribution, ecology, and phylogeny of the *Dissodactylus* complex is provided in Griffith (1987a, b).

DESCRIPTIVE ACCOUNT

Clypeasterophilus, new genus

Diagnosis.—Carapace with anterolateral margins continuous. Epistoma and labium of similar height, latter stout and blocky.

Pterygostomium markedly concave. Third maxilliped with merus distally suboval; palp with 3 articles, slender, length shorter than widest point of ischium-merus. Dactyli of first 3 pairs of walking legs distally bifid for less than one-fourth length. Male abdomen with somites 1 and 2 and 3–6 fused, telson subpentagonal. Female abdomen with 7 free abdominal somites. Gonopods with slight swelling proximal to abruptly narrowing tip.

Type Species.—By present designation, *Dissodactylus rugatus* Bouvier, 1917.

Etymology.—*Clypeasterophilus* has been selected to emphasize the symbiotic relationship between the bifid-dactyli crabs and irregular echinoids of the genus *Clypeaster*. Gender masculine.

Distribution.—West Atlantic: Florida to Cuba. East Pacific: Gulf of California (Mexico), Costa Rica, Panama, Ecuador (Griffith, 1987b; Hendrickx, 1990).

Host.—Echinodermata, Echinoidea, *Clypeaster* spp.

Remarks.—The genus *Clypeasterophilus* is closely allied to *Dissodactylus* Smith, 1870. Both genera possess the adaptive feature of the bifid dactyli on the walking legs, and

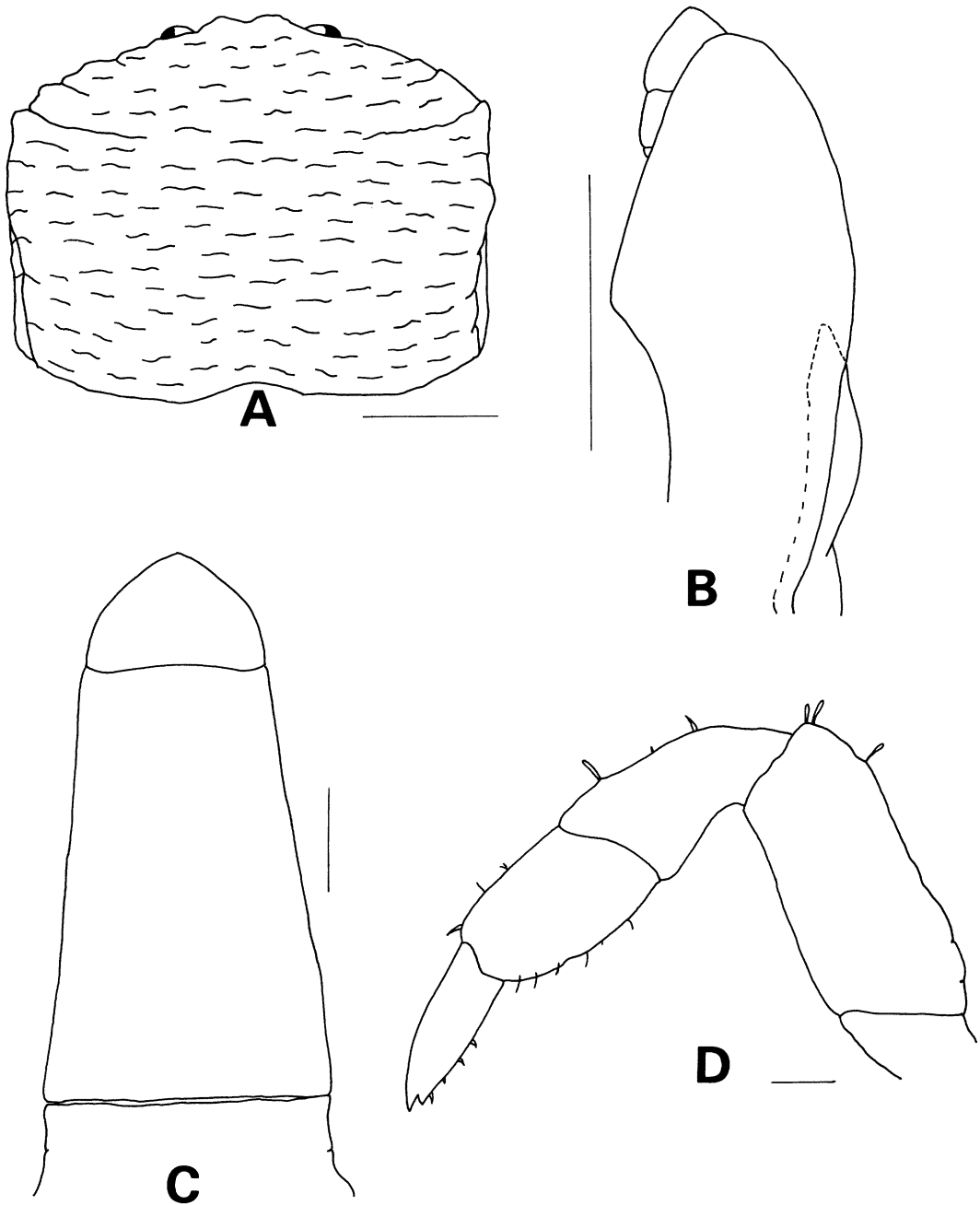


Fig. 1. A, B, and D, *Clypeasterophilus rugatus* (Bouvier, 1917); C, *C. stebbingi* (Rathbun, 1918). A, carapace; B, third maxilliped; C, abdomen; D, third ambulatory leg. B and D from Griffith, 1987b. Scale bars = 0.5 mm.

fused first and second, and third through sixth, male abdominal somites. These are synapomorphies which indicate that the two genera are sister-groups (Griffith, 1987a). *Clypeasterophilus* differs from *Dissodactylus* in several features: the anterolateral margins of the carapace are continuous in

Clypeasterophilus (Fig. 1 A) rather than disjoint as in *Dissodactylus* (Fig. 2A); the palp of the outer maxilliped is slender and shorter than the widest point of the ischium-merus in *Clypeasterophilus* (Fig. 1B) as opposed to stouter and larger than the widest part of the ischium-merus in *Dissodactylus* (Fig.

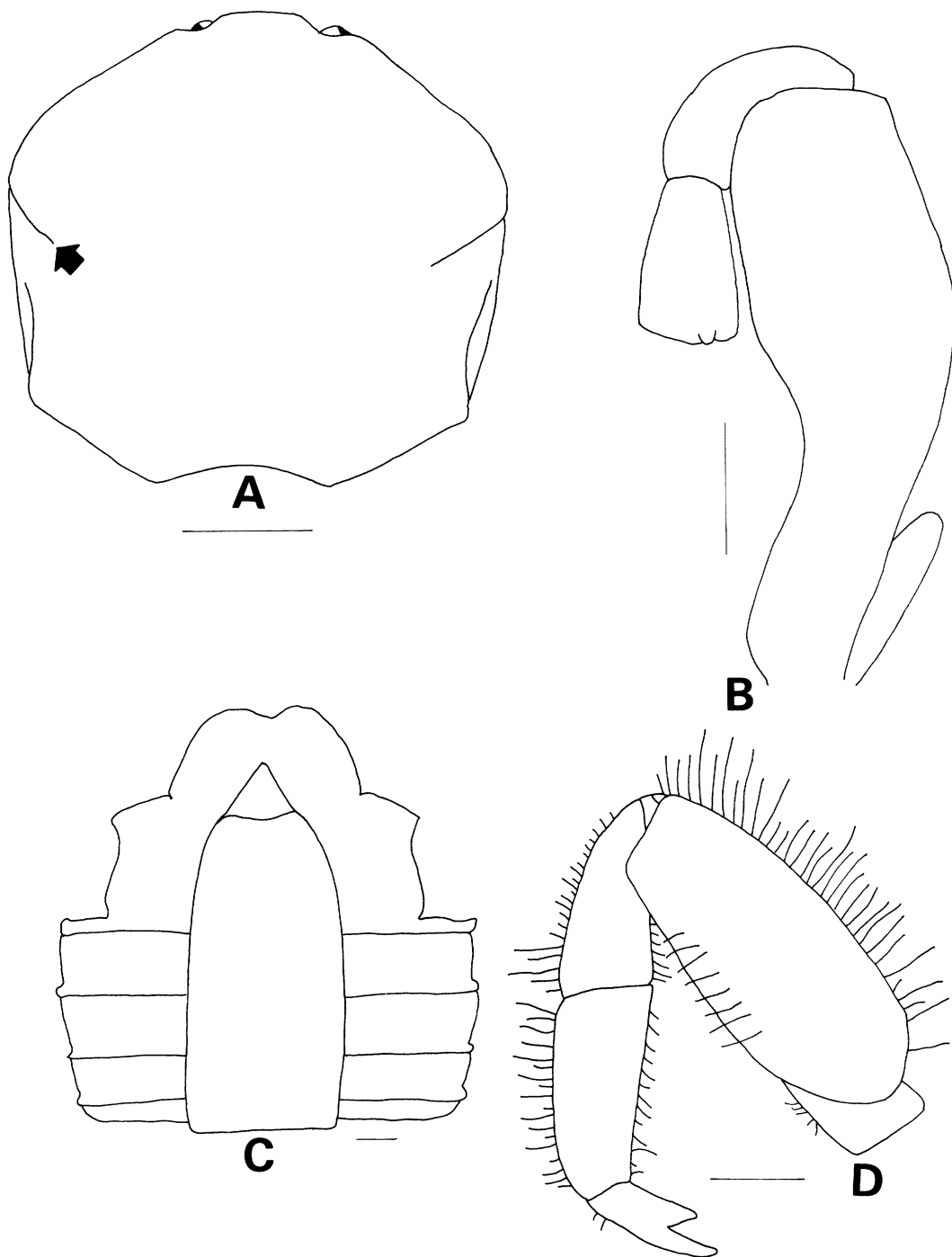


Fig. 2. *Dissodactylus nitidus* Smith, 1870. A, carapace, arrow indicating the disjunct anterolateral margin; B, third maxilliped; C, sternum and male abdomen; D, third ambulatory leg. B–D from Griffith, 1987b. Scale bars = 0.5 mm.

2B); the telson is subpentagonal in *Clypeasterophilus* (Fig. 1C) instead of being triangular or subtriangular as in *Dissodactylus* (Fig. 2C); and the gonopods narrow suddenly at the tip in *Clypeasterophilus*, as opposed to a more gradual tapering in *Dissodactylus*.

Ecologically *Clypeasterophilus* differs from *Dissodactylus* because all known species are exclusively symbionts of *Clypeaster* spp., a genus containing forms that tend to inhabit deeper waters than other irregular echinoids (Griffith, 1987a; Hendrickx, 1990). Species of *Dissodactylus* show a wide range of host species, including *Clypeaster* spp., mellitid sand dollars, and spatangoid irregular urchins (Griffith, 1987b). Four species are included in *Clypeasterophilus*: *D. rugatus* Bouvier, 1917, from Florida, Cuba, and Mosquito Island; *D. juvenilis* Bouvier, 1917, from off the delta of the Mississippi River to Florida and the Bahamas; *D. ususfructus* Griffith, 1987, from Costa Rica to Ecuador, and *D. stebbingi* Rathbun, 1918, from Florida.

Dissodactylus remains monophyletic after the creation of *Clypeasterophilus*. Synapomorphies for *Dissodactylus* include: the discontinuous anterolateral margin of the carapace, the delicate, ventrally curved labium, the dorsoventrally reduced epistome, and subrectangular, medially directed ischium-merus of the third maxilliped (Griffith, 1987a).

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