

A review of the genus *Pycnetron* Gahan (Hymenoptera: Pteromalidae) with description of a new species from Western Ghats, Kerala, India

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Abstract

The genus *Pycnetron* Gahan (1925) (Hymenoptera: Chalcidoidea: Pteromalidae) is reviewed and a new species is described from Western Ghats, Kerala, India. Affinities of the new species with other known species of the genus are discussed and a key to the world species also provided.

Keywords: Hymenoptera, Pteromalidae, *Pycnetron*, new species, key to the world species, review, India.

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Introduction

In this paper a new species of an interesting and rare genus *Pycnetron* Gahan (Pteromalidae: Chalcidoidea) collected from Western Ghats of Kerala, India is described. The genus *Pycnetron* Gahan belongs to the subfamily Pteromalinae, currently known by three species worldwide (Prinsloo 2005, Noyes 2016). The genus *Pycnetron* was described by Gahan with *P. curculionidis* Gahan from the Philippines. Bouček (1988) reported the occurrence of the genus from other localities in the Indo-Pacific region. He also provided a diagnosis of *Pycnetron* and commented on its relationship with other taxa of the subfamily Pteromalinae. Though the genus was first described from Philippine islands, the current distributional range of species indicates its probable African origin and later spread into the Southern and Eastern Asia to New Guinea and Australia. Presence of *Pycnetron* in the southern Western Ghats also indicates the occurrence of African elements in the Western Ghats and Peninsular India. Other species under the genus are *P. longicauda* (Risbec, 1952) described from Madagascar and *P. pix* Prinsloo, 2005 from South Africa. Presence of an unusually long tail of the laterally compressed female gaster and robust head and mesosoma with very broad

pronotum make the genus readily distinguishable from all other genera of the subfamily. Primary hosts of *Pycnetron* include families Curculionidae and Brentidae of Coleoptera (Noyes, 2016). This is the first record of the genus from India.

Materials and Methods

The specimen of the present study was collected using sweep net from a locality at the edge of a moist deciduous forest patch with an agroecosystem of mixed crops. The area is located at Kakkadampoyil, Calicut district (11.33618°N & 76.11025°E) which lies in the foothills of southern Western Ghats, Kerala. The specimen was preserved in 70% ethyl alcohol and card mounted for microscopic observation. It was studied under a stereoscopic binocular microscope (Leica M 205 C) and photographed with LEICA MC 170 HD camera attached to the microscope. The specimen is deposited in the National Zoological Collections of ZSIK. The present description is based on a single specimen since further efforts to collect more specimens did not yield any additional material due to the rare nature of the genus.

The following abbreviations are used in the text, fu₁-fu₅: funicular segments 1-5; MV:

marginal vein; OOL: ocello-ocular distance; PMV: post marginal vein; POL: post-ocellar distance; SMV: submarginal vein; STV: stigmal vein, Gt₁-Gt₇: tergites 1-7 of gaster; ZSIK-Zoological Survey of India, Kozhikode.

Pycnetron Gahan

Pycnetron Gahan, 1925: 91-93. Type species *Pycnetron curculionidis* Gahan, by monotypy.

Diagnosis: (Based on Bouček, 1988) Female gaster with long tail formed by the laterally compressed posterior part and narrow extended epipygium (Fig. 10); head and mesosoma robust; pronotum very broad without carina but with an abrupt angle to the slightly concave vertical front slope; scrobes deep and reaching the ocellus; antenna with three anelli in female and two in male; notauli not quite complete in some species; axillar grooves always very deep; apex of scutellum projecting, vertical, but frenal groove weak; mesopleuron anteriorly carinate, the carina starting at the lower third of prepectus as “epicnemial” carina and crosses to the other side near to the middle coxae, thus delimiting a short “mesosternal shelf”.

Hosts: *P. curculionidis* was reared from the weevil *Acicnemis filicornis* Husbenthal (Bouček, 1988). Hosts of *P. pix* include *Pissodes nemorensis* and *Antliarhinus peglerae* (Prinsloo, 2005).

Distribution: Queensland, Papua New Guinea, People’s republic of China, Philippines, Taiwan, Madagascar, South Africa (Noyes, 2016), India (current record).

Key to the species of *Pycnetron* Gahan (Females)

1. Forewing with dark spot; propodeum with median carina, notauli incomplete.....2
- Forewing without dark spot; propodeum without median carina, notauli complete but weak towards posterior end.....3
2. Forewing disc palely infuscated with a bold, broad, dark brown patch extending from STV across wing disc near to posterior wing margin (Fig. 2, Prinsloo, 2005), antenna

- dark brown except base of scape, fu₂, fu₃ and basal half of fu₄ paler, basal claval segment black, apical two segments testaceous, fu₁ 2.8-3.3× as long as wide (Fig. 3, Prinsloo, 2005).....***P.longicauda* (Risbec)**
- Forewing hyaline with a small roundish patch below STV not extending down as above (Fig. 9, Prinsloo, 2005); antenna with funicle and basal half of clava uniformly black, apical half of clava pale testaceous in contrast, fu₁ 2.5× as long as broad (Fig. 4, Prinsloo, 2005)***P.pix* Prinsloo**
- 3. Scape reddish testaceous, 3 anelli subequal in length, fu₁ twice as long as broad (Fig. 1a, Gahan, 1925), Gt₂-Gt₆ successively increasing slightly in length (Fig. 1b, Gahan, 1925).....***P.curculionidis* Gahan**
- Scape brownish black except base testaceous, first anellus smallest, 0.77× length of second anellus and 0.58× length of third anellus (Fig. 5), fu₁ 1.5× as long as broad (Fig. 4); Gt₂ short, 0.44× as long as Gt₁ and 0.43× as long as Gt₃ (Figs. 9 & 10).....***P.keralaensis* sp. n.**

***Pycnetron curculionidis* Gahan**

Pycnetron curculionidis Gahan, 1925, 27: 83-111, Holotype Female: Philippines (Not examined)

Diagnosis: (Based on Gahan, 1925) Female: Length, 5.6mm. Body black with scape and clava reddish testaceous; head strongly reticulate; face from slightly below the antennae with fine striae which converge at the mouth; three anelli subequal in length; fu₁ twice as long as broad, and the succeeding joints successively shortening (Fig. 1a, Gahan, 1925); mesoscutum, axillae and scutellum with close thimble-like punctuation; Gaster with Gt₁- Gt₆ successively increasing slightly in length (Fig. 1b, Gahan, 1925).

Male: length, 4.2mm. Resembles female but differs in having antennae with 2 anelli and 6 funicular segments; metasoma not longer than mesosoma, gaster not strongly compressed; Gt₇ shorter than Gt₆ and not tubular but triangular.

Distribution: Queensland, Papua New Guinea,

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People's republic of China, Philippines, Taiwan (Noyes, 2016)

Host: *Acicnemis filicornis* (Coleoptera: Curculionidae), Gahan, 192.

Pycnetron keralaensis sp. n.
(Figs.1-10)

[urn:lsid:zoobank.org:act:0172EAC0-9907-42E0-AF95-FB226041F0C6](https://doi.org/10.3896/BI.2017.42E0-AF95-FB226041F0C6)

Female: Length 4.5mm. Body black with slight metallic reflection on face, vertex, mesoscutum, axilla, metanotum, upper mesepisternum, metapleuron and nucha; antennae brownish black except half of first, second and third segments of clava and base of scape testaceous; mandibles brown with tips black; eyes reddish brown; ocelli brown; coxa concolorous with body, lateral parts of coxa and tibia with slight metallic reflection, tarsal segments except tip testaceous, apex and base of femur testaceous, remaining dark brown; tegula brown; wings hyaline, vein and pubescence brown; gaster brownish black, ventrally pale.

Head: Strongly reticulate, clypeal and paraclypeal area radiately striated, striae just reaching lower margin of eyes; clypeal margin weakly emarginated (Fig. 2). In front view head width $1.27\times$ height; malar groove distinct; malar space $0.49\times$ eye length, malar space and gena elongate reticulate, posterior margin of gena sharp and raised (Fig. 3); eye height $1.4\times$ width in profile. Scrobal area very deep and reach median ocellus, scrobe moderately reticulate. In dorsal view head width $2.24\times$ as broad as long; POL $1.25\times$ OOL, temple $0.36\times$ eye length; vertex and occiput closely reticulate. Antennae inserted above the level of lower ocular line (Fig. 2), scape $0.76\times$ eye length and just short of reaching median ocellus, pedicel plus flagellum $0.44\times$ as long as head width, pedicel $1.36\times$ as long as wide and $0.65\times$ as long as fu_1 , first anellus small, fu_1 and fu_2 almost equal and remaining segments gradually decreasing in length (Fig. 4), fu_1 $0.33\times$ as wide as long and fu_5 $0.63\times$ as wide as long. Relative lengths: scape 3.4, pedicel 0.7, anellus, first 3.5, second 4.5 and third 6 (Fig. 5), fu_1 1.5, fu_2 1.48, fu_3 1.2, fu_4 1,

fu_5 0.8, clava 2; clava a little longer than two preceding segments combined.

Mesosoma: (Fig. 6) Pronotum $5.2\times$ as broad as long, $0.28\times$ as long as mesoscutum, raised reticulate. Mesoscutum $1.64\times$ as broad as long, strongly reticulate with white pubescence, notauli almost complete but fading towards posterior part. Scutellum distinctly and strongly reticulate, length subequal to width; frenum absent. Propodeum (Fig.7) flat with fine reticulation, $3.7\times$ as wide as long, median carina absent, plicae complete and touch transverse edge, behind which deep transverse groove separating nucha; metanotum shiny, dorsellum with fine engraved reticulation, spiracle long, oval close to metanotum, post spiracular groove not distinct, callus with white long hairs; nucha short and deeply concave at posterior end. Metapleuron and mesopleuron moderately reticulate, triangular shiny area in upper mesepimeron; prepectus finely reticulate, transverse length of prepectus almost equal to tegula. Forewing (Fig. 8) $2.9\times$ as long as broad, discal pubescence moderately dense, speculum almost absent, basal cell and basal hairline with a few hairs, costal cell uniformly hairy, marginal fringe very small. Relative lengths: SMV 1.12, MV 0.47, PMV 0.6, STV 0.19. Hind coxae engraved reticulate, hind tibia widening towards posterior end with one spur.

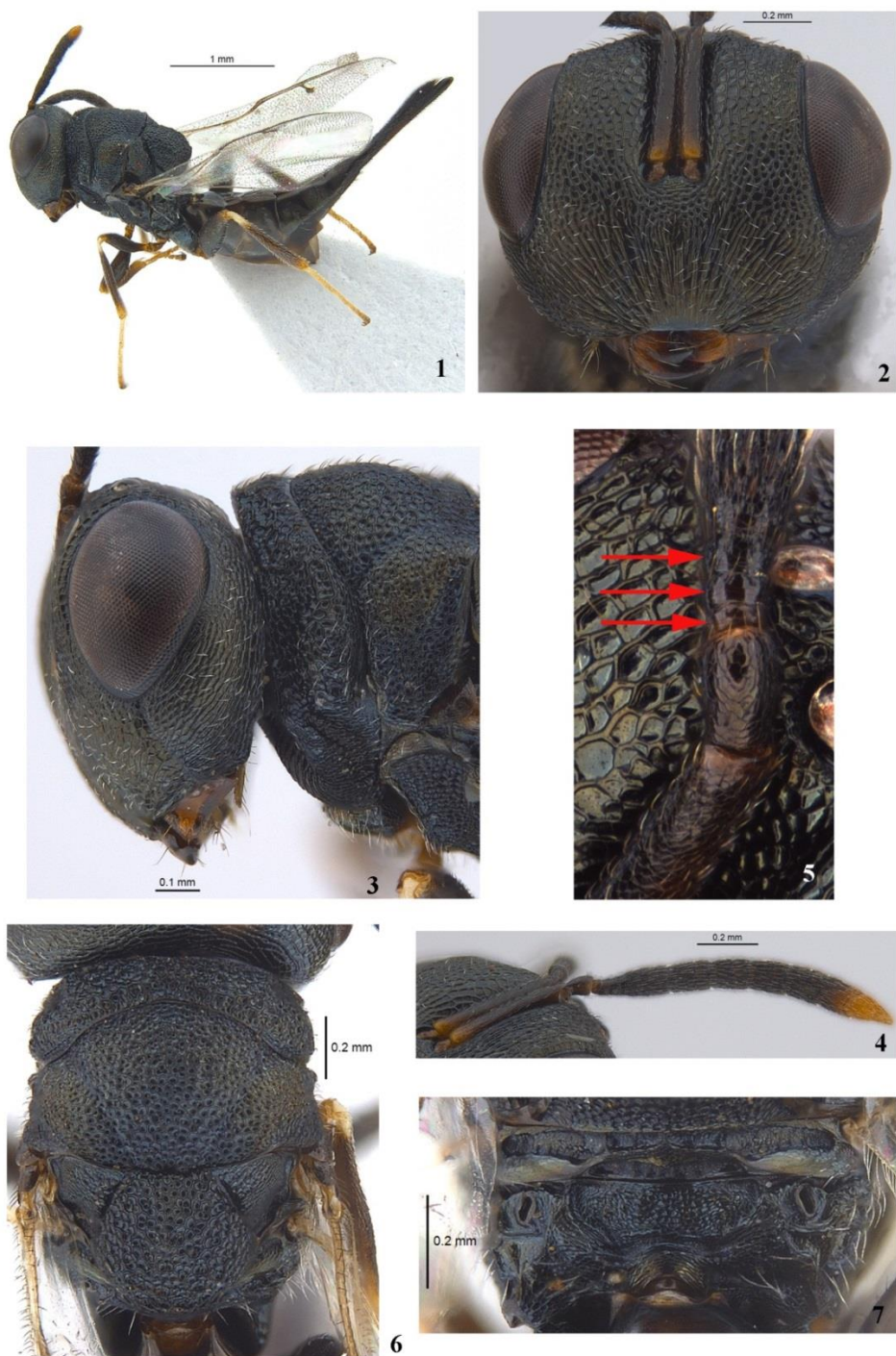
Metasoma: Gaster (Figs. 9 & 10) sessile, $1.44\times$ as long as head plus mesosoma combined and $10.68\times$ as long as propodeum, Gt_1 - Gt_4 incised in the middle, Gt_2 $0.44\times$ as long as Gt_1 and $0.43\times$ as long as Gt_3 , Gt_7 $3.6\times$ as long as Gt_6 . Relative lengths: Gt_1 0.35, Gt_2 0.16, Gt_3 0.36, Gt_4 0.24, Gt_5 0.34, Gt_6 0.4.

Male: unknown

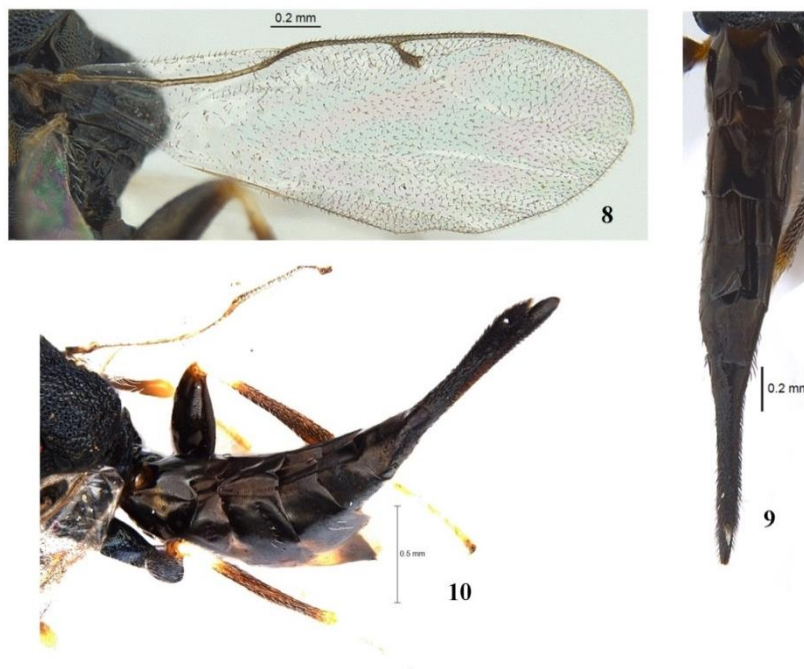
Material Examined: Holotype: Female, India: Kerala, Calicut, Kakkadampoyil (11.33618°N & 76.11025°E, elevation 674.6m), 13.i.2017, Coll. Dr.P.M.Sureshan. Reg.No. ZSI/WGRC/IR/INV/8603.

Host: Unknown.

Remarks: *P. keralaensis* sp. n. closely resembles *P. curculionidis* Gahan but differs from it as follows: scape brownish black except



Figs. 1-7. *Pycnetron keralaensis* sp. n. Female: 1. Body in profile; 2. Head in front view 3. Head and mesosoma (part) in profile; 4. Antenna; 5. Anelli; 6. Mesosoma in dorsal view; 7. Propodeum in dorsal view.



Figs. 8-10. *Pycnetron keralaensis* sp. n. Female: 8. Forewing; 9. Gaster in dorsal view; 10. Gaster in lateral view

base testaceous, clava testaceous except basal half of first segment, 3 anelli different in length (Fig. 5), first anellus smallest, $0.77\times$ as long as second anellus and $0.58\times$ as long as third anellus, fu_1 $1.5\times$ as long as broad (Fig. 4); Gt_2 short (Figs. 9 & 10), $0.44\times$ as long as Gt_1 and $0.43\times$ as long as Gt_3 ; hind tibia with a single spur (in *P. curculionidis* scape and clava reddish testaceous, 3 anelli subequal in length (Fig. 1a, Gahan, 1925), fu_1 twice as long as broad, Gt_1 - Gt_6 successively increasing slightly in length (Fig. 1b, Gahan, 1925), hind tibia with two spurs). Absence of dark patch on forewing and propodeum without median carina make *P. keralaensis* sp. n. readily distinguishable from other two known species, *P. longicauda* and *P. pix* (Figs. 2 & 9, Prinsloo, 2005).

Etymology: The species name derives from the type locality Kerala (India).

***Pycnetron longicauda* (Risbec)**

Aepocerus? *longicauda* Risbec, 1952: 315-318
Pycnetron longicauda (Risbec): Bouček, 1976:21.
 ?*Pseudocatolaccus ranomafanae* Risbec: Bouček, 1976:21. (Not examined)

Diagnosis: (Based on Prinsloo, 2005) Female: Length, 6-9mm. Head and mesosoma black with slightly metallic tinge; antenna with scape except base, pedicel, anelli and basal funicular segments dark brown; fu_2 , fu_3 and basal half of fu_4 noticeably paler, the apex of fu_4 , fu_5 and basal claval segment black, apical claval segments testaceous; notauli incomplete; forewing disc with a bold broad, dark patch extending from STV across wing disc to near posterior wing margin (Fig. 2, Prinsloo, 2005); propodeum with median carina.

Male: unknown

Distribution: Madagascar

Host: Unknown

***Pycnetron pix* Prinsloo**

Pycnetron pix Prinsloo, 2005, 13(2):344-346. (Not examined)

Diagnosis: (Based on Prinsloo, 2005) Female: Length, 7-8mm. Head and mesosoma black and shiny; antenna with funicle and basal half of clava uniformly black, apical half of clava pale

testaceous in contrast, forewing with roundish patch below STV (Fig. 9, Prinsloo, 2005), fu_1 2.5× as long as broad (Fig. 4, Prinsloo, 2005), clypeal margin medially forming two blunt teeth, pronotal collar medially 0.2× length of mesoscutum (Fig. 8, Prinsloo, 2005); basal cell bare except 1-5 setae just below SMV; hind tibia with 2 short spurs.

Male: resembles female but differs as follows: antenna with 2 anelli and 6 funicular segments (Fig. 5, Prinsloo, 2005); forewing a little broader, 2.4× as long as wide; gaster short and broad, as long as mesosoma.

Distribution: South Africa

Host: *Pissodes nemorensis* (Coleoptera: Curculionidae) and *Antliarhinus peglerae* (Coleoptera: Brentidae) (Prinsloo, 2005).

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