

## Description of a new species of potter wasp (Hymenoptera, Vespidae, Eumeninae) from northeast India

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**ABSTRACT:** *Pseumenes* Giordani Soika, 1935 is a small genus of potter wasps occurring in Oriental, Australian and Palearctic Regions. Only one species, *Pseumenes depressus* (de Saussure, 1855) is known so far from India. A new species, *Pseumenes siangensis* **sp. nov.** from Arunachal Pradesh, is described. The morphological affinities of the new species are discussed. The new species is compared with the closely related *P. depressus* as well as *P. laboriosus*. Since *P. depressus* is similar to *P. laboriosus*, comparisons were made between *P. laboriosus* and *P. siangensis* **sp. nov.** The apical teeth of the propodeum are medium sized and blunt in *P. siangensis* **sp. nov.** (long and sharp in *P. laboriosus*); the posterior part of the first tergite is densely punctate in the middle *P. siangensis* **sp. nov.** (almost impunctate in *P. laboriosus*). The clypeus without a median black spot in *P. siangensis* **sp. nov.** (with median black spot in *P. laboriosus*).

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**KEY WORDS:** Eastern Himalayas, new description, taxonomy, morphological affinities

The potter wasps, belonging to the subfamily Eumeninae, stand out as the most diverse group within the family Vespidae, with around 3,795 species across 205 genera (Selis 2017; Kumar *et al.*, 2019; Li *et al.*, 2019; Lien *et al.*, 2020). These wasps are cosmopolitan in distribution and are mostly known for their solitary or occasionally sub-social lifestyle (Pannure *et al.*, 2016). They vary in size and shape, from small and stout to large and elongate, with their metasoma varying from sessile to distinctly petiolate. The Indian potter wasp fauna is represented by 193 species under 48 genera (Gawas *et al.*, 2020). Despite their diversity, the study of potter wasps in India remains limited (Pannure *et al.*, 2016; Kumar *et al.*, 2019). The

genus *Pseumenes*, described by Giordani Soika in 1935 includes a small group of solitary wasps with eight species within the Oriental Region, as documented by Giordani Soika (1935, 1941), Vecht (1963), Selis (2017) and Lien *et al.* (2020). Till now only one species, *P. depressus* (de Saussure, 1855) has been reported from India. Here a new species, *Pseumenes siangensis* **sp. nov.**, collected from Arunachal Pradesh, India in the eastern Himalayas is described with illustration. The new species is compared with the closely related *P. depressus* as well as *P. laboriosus*.

The lone specimen was collected with a sweep net from Upper Siang, Arunachal Pradesh. It was

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treated with hexamethyldisilazane (Heraty and Hawks, 1998) and later dried and pinned. Images were taken with Keyence VHX-6000 digital microscope. Morphological terminology and cuticular sculpture are adapted from Carpenter and Cumming (1985) and Yamane (1990). Type specimen is deposited in the collections of the ATREE Insect Museum, Bengaluru, India (AIMB/Hy/Vs300001) and will be subsequently transferred to the National repository of ICAR-National Bureau of Agricultural Insect Resources (ICAR-NBAIR).

**Terms and measurements:** T1–T6: Tergite 1–Tergite 6; S1–S6: Sternite 1–Sternite 6; IOD: Inter-ocellar distance, the distance between the two posterior ocelli; OOD: Ocello-ocular distance, the minimum distance between the posterior ocellus and eye.

**Order Hymenoptera Linnaeus, 1758;**  
**Family Vespidae Latreille, 1802;**  
**Subfamily Eumeninae (Leach, 1815);**  
**Genus *Pseumenes* Giordani Soika, 1935**

*Pseumenes* Giordani Soika, 1935, 57: 145, subgenus of *Pareumenes* de Saussure. Type species: *Eumenes eximius* Smith, 1861, by original designation.

**Diagnosis:** See Lien *et al.* (2020); **Distribution:** Oriental Region

***Pseumenes siangensis* sp. nov.** (Figs. 1–3)

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**Type material.** Holotype female, India: Arunachal Pradesh, Arpung River, Upper Siang, 16°24'12" N, 74°22'42" E, 615m a.s.l., 17.x.2022, coll. Ranjith A.P. (AIMB).

**Diagnosis:** This new species differs from all other Oriental species of *Pseumenes* in having the following combination of characters: punctuation in the petiole deep, distinct and coarse (Figs. 2C, E); yellow markings on mesoscutum not arcuate (Fig. 1F); two submedial yellow spots on petiole absent (Figs. 1A, 2C, E); inner eye margin with discontinuous yellow longitudinal band (Fig. 1B); T2 not medially emarginate and with only apical

band and no oval spot (Fig. 3A); only one yellow patch in mesopleuron (Fig. 2A); sub tegular yellow spot small (Fig. 1F); T5 without any yellow markings (Figs. 2D, 3A, C); anterior width of third submarginal cell  $5.0 \times$  that of second submarginal cell (Figs. 3B, D).

**Description:** Holotype, female, length of body from head to apex of last tergite 30.2 mm; fore wing length 19.3mm.

**Head:** Head in anterior view longer than wide, about  $1.2 \times$  as long as wide. Ocelli rather flat than raised, the posterior pair  $1.1 \times$  far apart than the distance from the eyes (OOD), the anterior ocellus  $1.4 \times$  wider than the posterior ocelli, IOD: 0.51mm (Fig. 1C). Frons densely covered with coarse punctures except apical 1/4th area (Fig. 1B). Vertex without fovea, with coarser and denser punctures than on frons; punctures on gena smaller and sparser than on vertex, space between punctures smooth (Figs. 1C, D); area behind ocellus triangle not prominently swollen. Distance from posterior ocelli to apical margin of vertex about  $1.5 \times$  distance from posterior ocelli to inner eye margin (Fig. 1C). Gena in lateral view  $1.2 \times$  as wide as eye at ocular sinus, sharply tapering in lower third (Fig. 1D). Occipital carina present only laterally, indistinct dorsally (Fig. 1C). Inner eye margins almost parallel, weakly converging below (Fig. 1B). Clypeus with a small flattened area just above apical margin, disc of clypeus in lateral view gradually convex from base to near apical margin, then slightly bent backwards, in frontal view  $0.9 \times$  as long as wide, with basal margin slightly convex medially, almost touching antennal sockets; apical margin emarginate medially, forming blunt tooth on each lateral side, width of emargination much less than  $0.2 \times$  width of clypeus between inner eye margins (Figs. 1B, E). Clypeus sparsely punctured, each puncture bearing a medium length seta, area between punctures without micro punctures. Mandible smooth, broad, with five prominent teeth, first and second teeth from base truncated, third one triangular and fourth and fifth pointed (Figs. 1D, E). Antenna with 12 segments, antennal scape long, about  $4.4 \times$  as long as its maximum width; flagellomere I  $1.8 \times$  as long as wide, flagellomeres II–V, VII and IX slightly longer than wide, VI, VIII



Fig. 1 *Psuemenes siangensis* sp. nov., holotype, female  
A) habitus, lateral view; B) head, anterior view;  
C) head, dorsal view; D) head, lateral view; E) head,  
ventral view; F) mesosoma, dorsal view.



Fig. 2 *Psuemenes siangensis* sp. nov., holotype, female  
A) mesosoma, lateral view; B) propodeum, dorsal  
view; C) T1, lateral view; D) metasoma, lateral view;  
E) T1, dorsal view; F) T1, ventral view.

as long as wide, terminal flagellomere bullet shaped, longer than wide (Figs. 1D, E).

**Mesosoma:**  $1.3 \times$  longer than wide in dorsal view. Pronotal carina strongly raised through out, reaching ventral corner of pronotum (Fig. 2A). Apical margin of pronotum with punctures similar to those on frons, shallow punctures on basal region (Fig. 1F). Mesoscutum in lateral view strongly convex, in dorsal view as long as wide between tegulae with a short mid longitudinal groove anteriorly, without any trace of prescutal furrows near apical margin, lateral impressed longitudinal lines near lateral sides also indistinct, uniformly covered with strong coarse punctures except lateral side of apical margin (Fig. 2A). Tegula with sparse, small punctures (Fig. 1F). Punctures on scutellum similar to those near lateral side of apical margin of mesoscutum (Figs. 1F, 2B). Disc of scutellum nearly flat, in lateral view at same level of apical margin of mesoscutum. Metanotum slightly convex, sloping down to apical margin. Punctures on metanotum larger than those on scutellum, distinct in apical half (Fig. 2B). Mesepisternum with punctures on upper dorsal part very coarse, space between punctures strongly raised to form reticulation, with strong and large punctures postero-dorsally, several shallow and small punctures antero-ventrally. Metapleuron largely smooth, apical part with several long strong striae, and basal part with several short strong striae, with some shallow and very sparse punctures (Fig. 2A). Propodeum short and broad dorsally, moderately convex, deeply excavated medially, with the excavation wide, less than one-third width of propodeum, excavation with edges raised like two parallel and sharp carinae, basal triangular area with longitudinal basal fovea, with median carina runs from fovea to apical margin, several obliquely ribbed flank on both sides of median carina, lateral side shallowly emarginate at apex, apical teeth of propodeum medium sized, blunt (Fig. 2B). Most of mesosoma with short setae, setae on propodeum longer, with coarse and dense punctures on each side of excavated area medially, lateral surface of excavated area obliquely rugose, with several shallow punctures in between rugose area.

**Wings:** Fore wing vein 1-M  $1.4 \times$  as long as vein 1-SR; second submarginal cell sessile anteriorly,  $1.6 \times$  as long as third cell diagonally (Figs. 3B, D).

**Metasoma:** T1 long and slender,  $0.7 \times$  less than that of mesosoma; parallel sided in basal two-third, inflated in apical third, in dorsal view nearly  $2.4 \times$  as long as wide, lateral tubercles inconspicuous, in lateral view gradually convex from base, then slightly depressed and gradually convex near apical margin, distinctly narrower than T2, covered with medium punctures, sparse in basal  $1/4^{\text{th}}$ , gradually denser towards apex (Figs. 2C, E); T2 in dorsal view  $1.2 \times$  wider than long, in lateral view regularly convex from base to apical margin, without raised lamellae at apical margin, not medially emarginate, punctures at lateral sides of T2 similar but sparser than those on apical part of T1 with an impunctate area in basolateral side, punctures at dorsal part fainter (Figs. 2D, 3A). S1 parallel in basal two-thirds, enlarged rather abruptly in apical third with several distinct and short transverse striae in middle of narrowed basal region, remaining surface

towards apex without striate, with strong punctures (Fig. 2F). S2 in lateral view gradually and slightly convex from base to apical margin. Punctures on T3–T6 much smaller and weaker than those on T2 (Figs. 3A, C); T5–T6 with minute punctures; punctures on S2–S4 sparse basally, punctures on S5 and S6 very sparse, S6 with minute punctures (Fig. 2D).

**Colour:** Black; body covered with majorly golden setae, following parts yellow: clypeus except apical flattened area, ocular sinus, two irregular spots on inner margin of eye, large spot between antennal toruli and narrowly extending to anterior ocellus, antennal scape beneath (Fig. 1B), two lateral spots on occiput extending from gena, two discontinuous bands on pronotum (Fig. 1F), subcircular spot on mesopleuron (Fig. 2A), two submedial longitudinal band on mesoscutum (Fig. 1F), tegula except medially, parategula, two lateral spots on scutellum, fore femur, tibiae dorsally, apical bands on T1–T4 (Figs. 3A, C), small spot on lateral side of S2 (Fig. 2D) yellow. Small flattened area at apical margin of clypeus (Fig. 1B), antennal scape ventrally, vertex, occiput except laterally, basal margin of pronotum, mesoscutum except submedial bands, setae on mesoscutum, metanotum, metapleuron, medial excavation and two antero-lateral spots of propodeum, pair of small lateral spots near apical margin of T1, T5–T6 (Figs. 3A, C), S1–S6 except pair of small spots on lateral side of S2 black. Flagellomeres beneath ferruginous (Fig. 1E). Propodeal valvulae light brown (Fig. 2B). T2–T6 with subapical row of long golden setae (Fig. 2D). Wings infusate, veins dark brown (Figs. 3B, D).

**Male:** Unknown; **Biology:** Unknown; **Distribution:** India (Arunachal Pradesh).

**Etymology:** The specific epithet '*siangensis*' is derived from the Siang Valley in Arunachal Pradesh, India, where the specimen was collected. The name honors the collection locality and highlights the biological richness and ecological significance of this region.

**Remarks:** This species comes close to *P. depressus* (de Saussure, 1855), but can be distinguished from the latter by having punctuation

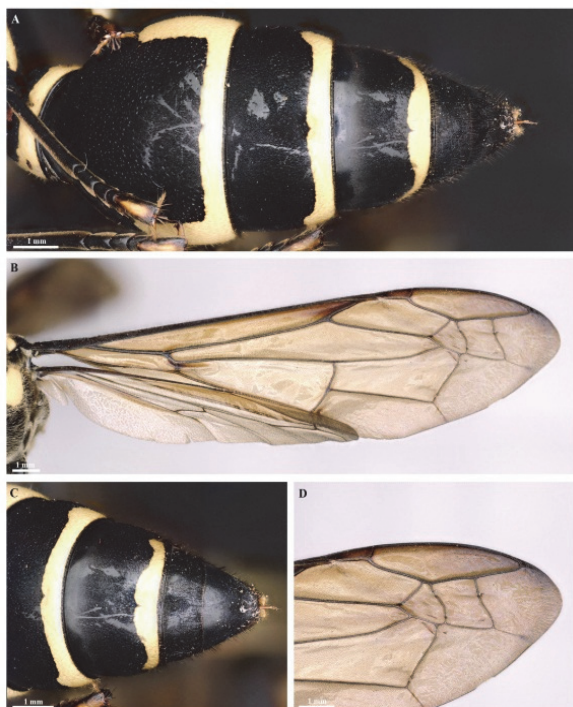


Fig. 3 *Psuemenes siangensis* sp. nov., holotype, female A) metasoma, dorsal view; B, D) wings, dorsal view; C) metasoma, distal tergites.

in the petiole distinct and coarse (apical part sparsely and strongly punctate medially in *P. depressus*); yellow markings on mesoscutum not arcuate (strongly arcuate almost touching tegula in *P. depressus*); two submedial yellow spots on petiole absent (present in *P. depressus*); inner eye margin with discontinuous yellow longitudinal band (continuous in *P. depressus*); T2 not medially emarginate and with only apical band and no oval spot antero-laterally (medially emarginate and with both apical band and oval spot in *P. depressus*); only one yellow patch in mesopleuron (two in *P. depressus*); subtegular yellow spot small sized (longer in *P. depressus*); T5 without any yellow markings (with yellow markings in *P. depressus*); anterior width of third submarginal cell  $5.0 \times$  that of second submarginal cell ( $2.3 \times$  in *P. depressus*). Since *P. depressus* is similar to *P. laboriosus*, comparisons were made between *P. laboriosus* and *P. siangensis* **sp. nov.** The apical teeth of the propodeum are medium sized and blunt in *P. siangensis* **sp. nov.** (long and sharp in *P. laboriosus*); the posterior part of the first tergite is densely punctate in the middle *P. siangensis* **sp. nov.** (almost impunctate in *P. laboriosus*). The clypeus without a median black spot in *P. siangensis* **sp. nov.** (with median black spot in *P. laboriosus*).

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