

## ***Pseudolasius machbediensis*, a New Ant Species from Indian Himalaya (Hymenoptera: Formicidae)**

by

Himender Bharti, Irfan Gul & Yash Paul Sharma

### ABSTRACT

*Pseudolasius machbediensis* sp. nov. is described from India. This marks the second species of this genus reported in India, with only *Pseudolasius familiaris* (F. Smith) described earlier. An identification key to worker caste is provided to separate the Indian species.

Keywords: *Pseudolasius*, ants, new species, Indian Himalaya.

### INTRODUCTION

The genus *Pseudolasius* Emery, 1887 is currently represented by 45 species and 15 subspecies from the world (Bolton 2012). The *Pseudolasius* ants are known for polymorphic worker caste, with most of the species having major and minor workers (LaPolla 2004).

*Pseudolasius* awaits a global taxonomic revision, however, important taxonomic contributions to this genus include: Emery, 1911 (all species key); Menozzi, 1924 (Afrotropical species key); Wu, J. & Wang, C. 1995 (China species key); Xu, 1997 (China species key); Zhou, 2001 (China, Guangxi species key); LaPolla, 2004 (Afrotropical species key).

During the course of present study one new species has been recorded from Himalaya and this differs considerably from already described species of this genus. Prior to this study, only one species had been recorded from India (Bharti 2011). With the current addition 2 species signify the genus *Pseudolasius* from India. A key for the worker caste of Indian species has been provided.

### MATERIALS AND METHODS

The specimens were collected by handpicking method. The taxonomic analysis was conducted on a Nikon SMZ 1500 stereo zoom microscope.

---

Department of Zoology and Environmental Sciences, Punjabi University, Patiala- 147002, India  
E-mails: himenderbharti@gmail.com; irfangulhhh@gmail.com

For digital images, an MP evolution digital camera was used on the same microscope with Auto-Montage (Syncroscopy, Division of Synoptics, Ltd.) software. Later, images were cleaned as per requirement with Adobe Photoshop CS5. Holotype and paratypes of the species have been deposited in PUPAC, Punjabi University Patiala Ant Collection, Patiala. Morphological terminology for measurements (given in millimeters) includes:

HL- Head length: The length of the head capsule excluding the mandibles, measured in full face view in a straight line from the middle of the anterior clypeal margin to the middle of the occipital margin.

HW- Head width: The maximum width of the head in full face view behind the eyes.

SL- Scape length: The maximum straight line length of the scape, excluding the basal constriction or neck that occurs just distal of the condylar bulb.

CI- Cephalic index:  $HW/HL \times 100$ .

SI- Scape index:  $SL/HW \times 100$ .

## DESCRIPTION

### *Pseudolasius machhediensis* sp. nov.

(Figs. 1-6)

*Holotype, major worker*: India, Jammu & Kashmir, Machhedi, 32.72364N, 75.669464E, 2130m above msl, 15.xi.2008. Paratypes: 2 major workers, 7 minor workers, same data as holotype; 2 major workers, 27 minor workers, India, Himachal Pradesh, Gangradi, 32.844098N, 77.151283E, 1600m above msl, 05.xii.2010; 2 minor workers, India, Himachal Pradesh, Kulu, Patlikul town, 32.074N, 77.088E, 1200m above msl, 29.v.1999; hand picking (coll. Irfan Gul & Himender Bharti).

### **Description of major worker (Figs. 1-3):**

Worker Measurements: HL 1.25-1.36(1.36); HW 1.15-1.40(1.40); SL 1.13-1.25(1.20). (n=5)

Head: Head subquadrate [CI= 92-103(103)]; occipital margin weakly emarginate; occipital corners round; lateral sides subparallel, narrowing towards the anterior margin; anterior clypeal margin broadly round, somewhat transverse in the median portion; eyes small, round, situated in front of the

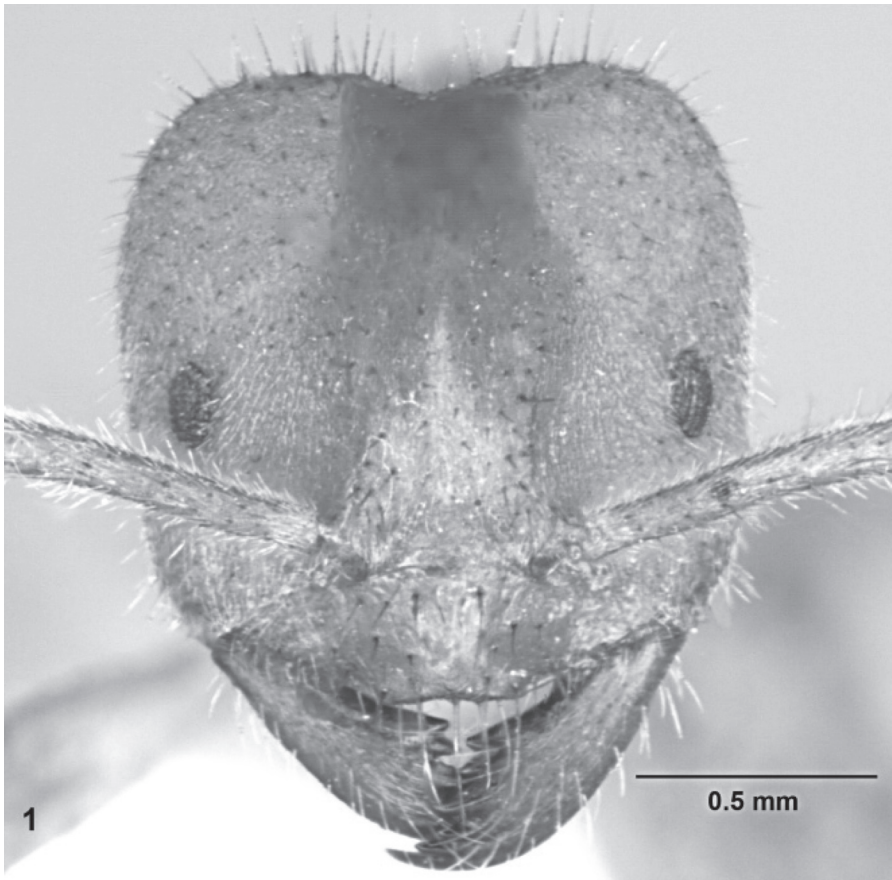
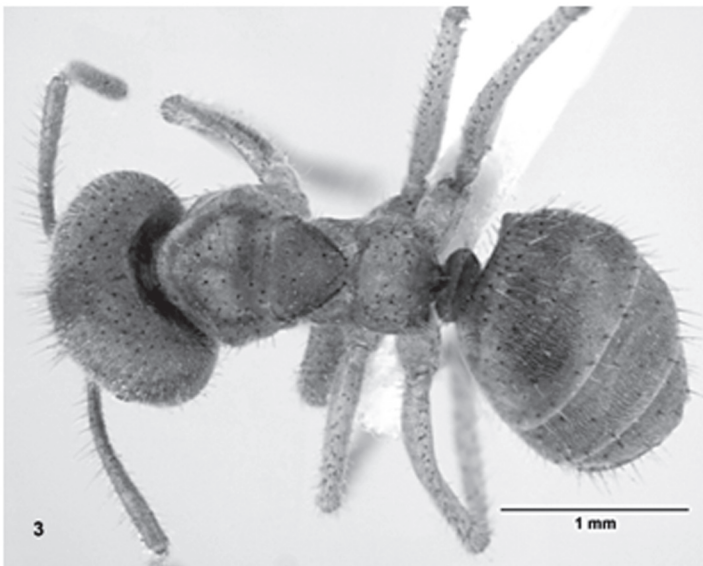


Fig. 1. *Pseudolasius machbediensis* sp. nov., Major worker 1. Head, dorsal view.

middle of sides of head; mandibles triangular, the masticatory margin with 6 prominent teeth, the 3<sup>rd</sup> apical tooth smaller than the 2<sup>nd</sup> and 4<sup>th</sup>, the 4<sup>th</sup> tooth larger than the 5<sup>th</sup> and 6<sup>th</sup> teeth; frontal area small, triangular; frontal carinae short, parallel; antennae slender, 12 segmented, scape fairly long, distinctly surpassing the occipital margin [SI= 85-100(85)], last segment of the funiculus slightly longer than the two preceding segments taken together.

Mesosoma and Petiole: Mesosoma with weakly convex promesonotal dorsum, broadest across humeral angles; pronotum convex with the sides round, mesonotum and metanotum with the sides somewhat flat; promesonotal and



Figs. 2-3: *Pseudolasius machbediensis* sp. nov., 2. Body, lateral view. 3. Body, dorsal view.

mesometanotal sutures quite distinct; petiolar node with the sides more or less round, apex thin and more or less emarginate; legs stout and fairly long.

Gaster: Gaster long, oval, narrowed in front and behind, pointed at apex.

Sculpture: Head roughly smooth except for the microreticulated sculpture visible at the higher magnification; mandibles distinctly rugulose more so towards the apex; punctures and tubercles scattered all over the body; clypeus smooth and much more shiny; sculpture of mesosoma as in head; abdomen smooth and somewhat shiny.

Pilosity: Body clothed with silky yellow pubescent hairs and longer and shorter outstanding hairs; pubescence is more on head and mesosoma.

Color: The species is pale yellow in color but in some specimens the head is darker and the abdomen brown; the teeth and eyes are black and the legs yellow.

### **Description of minor worker (Figs. 4-6):**

Worker Measurements: HL 0.8-1.0(0.84); HW 0.72-1.02(0.77); SL 0.72-1.1(0.8). (n=28)

Head: Head roughly square [CI= 89-102(91)]; occipital margin straight to feebly excised in some specimens; occipital corners round; lateral sides more or less parallel; anterior clypeal margin broadly rounded; eyes small, round, situated in front of the middle of sides of head; mandibles triangular, the masticatory margin with 6 prominent teeth, the 3<sup>rd</sup> apical tooth smaller than the 2<sup>nd</sup> and 4<sup>th</sup>, the 4<sup>th</sup> tooth larger than the 5<sup>th</sup> and 6<sup>th</sup> teeth; frontal area small, triangular; frontal carinae short, nearly parallel; antennae slender, 12 segmented, scape fairly long, distinctly surpassing the occipital margin [SI= 100-107(104)], last segment of the funiculus slightly longer than the two preceding segments taken together.

Mesosoma and Petiole: Mesosoma with weakly convex promesonotal dorsum, broadest across humeral angles; pronotum convex with the sides round, mesonotum and metanotum with the sides somewhat flat; promesonotal and mesometanotal sutures quite distinct; petiolar node with the sides more or less straight, apex thin and emarginate; legs stout and fairly long.

Gaster: Gaster long, oval, narrowed in front and behind, pointed at apex.

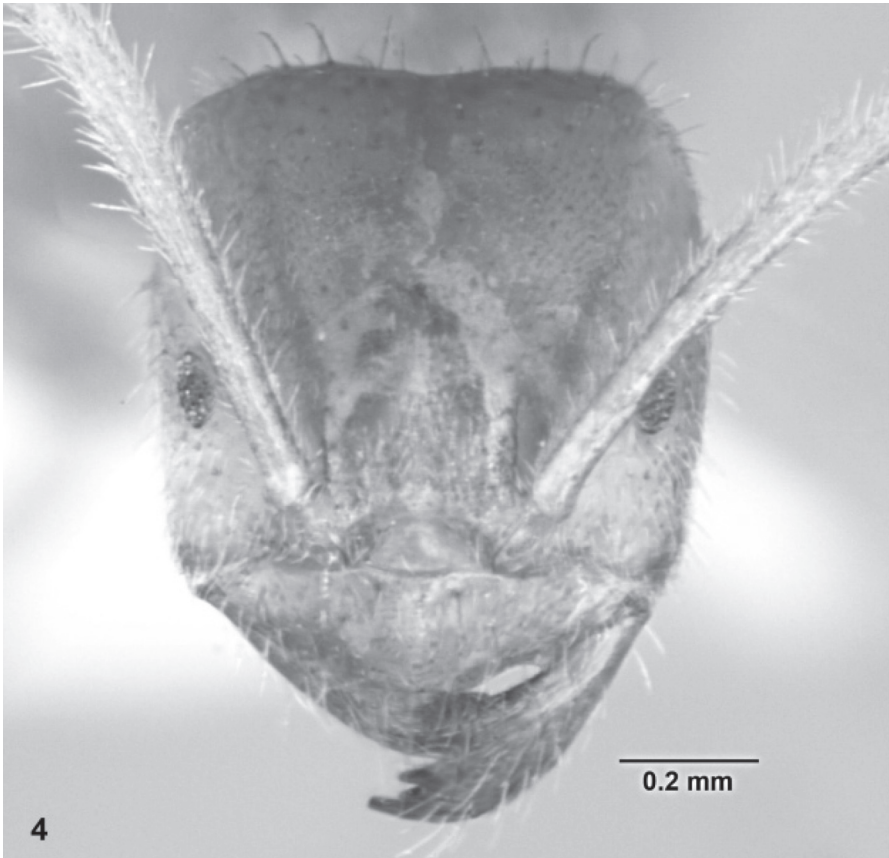


Fig.4. *Pseudolasius machbediensis* sp. nov., Minor worker. Head, dorsal view.

**Sculpture:** The sculpture is same as that of the major workers. The minors are more shining all over; the whole body is much smoother than the major workers; mandibles distinctly rugulose all over; punctures and tubercles scattered all over the body; clypeus smooth and shiny.

**Pilosity:** Longer and shorter outstanding hairs scattered all over the body; the minor workers are quite deficient of pubescence, the pubescence is not as much as in case of major workers and is denser on the head.

**Color:** The color varies from light yellow to pale yellow with a darker abdomen; the teeth and eyes are black.





Figs. 5-6: *Pseudolasius machbediensis* sp. nov., Minor worker. 5. Body, lateral view; Fig 6. Body, dorsal view.

**Distribution and Habitat:**

The species has been collected from North-West Himalaya, in Jammu and Kashmir and Himachal Pradesh. The species inhabits moderately wet and

lighted forested areas with scarce undergrowth and in all the cases specimens were collected under stones by hand picking.

### Etymology:

The species is named after the type locality, Machhedi.

### Remarks:

(Based on major workers) The species is significantly different from all other reports of this genus. *Pseudolasius machhediensis* sp. nov. somewhat resembles the Chinese *Pseudolasius bidenticypeus* Xu, 1997 but can be easily distinguished from the latter. In *Pseudolasius machhediensis* sp. nov. the 4<sup>th</sup> tooth is larger than the 5<sup>th</sup> and 6<sup>th</sup> teeth and the clypeus is smooth without any denticle, whereas in *Pseudolasius bidenticypeus* the 4<sup>th</sup> tooth is smaller and the clypeus is with one blunt denticle at each side. It is different from *Pseudolasius familiaris* (F. Smith), the only species reported from India and can be easily separated from it, as in *Pseudolasius familiaris* the teeth are five in number with 4<sup>th</sup> and 5<sup>th</sup> combined, but in *Pseudolasius machhediensis* sp. nov., the teeth are six in number with the 5<sup>th</sup> and 6<sup>th</sup> combined, the head is weakly emarginate and the antennae are much longer.

### KEY TO THE KNOWN SPECIES OF *PSEUDOLASIUS* FROM INDIA BASED ON MAJOR WORKER CASTE

Mandibles armed with 5 teeth, the basal two combined; antennae somewhat short ..... *Pseudolasius familiaris* (F. Smith)  
Mandibles armed with 6 teeth, the basal two combined; antennae long, distinctly surpassing the occipital margin .....  
.....*Pseudolasius machhediensis* sp. nov.

### ACKNOWLEDGEMENTS

Financial assistance rendered by Department of Science and Technology (Grant No. SR/SO/AS-65/2007), Govt. of India, New Delhi is gratefully acknowledged.

### REFERENCES

- Bharti, H. 2011. List of Indian Ants (Hymenoptera: Formicidae). Halteres 3: 79-87.  
Bolton, B. 2012. Bolton's Catalogue and Synopsis, in <http://gap.entclub.org/> " Version: 1 January 2012.



- Emery, C. 1887. Catalogo delle formiche esistenti nelle collezioni del Museo Civico di Genova. Parte terza. Formiche della regione Indo-Malese e dell'Australia. [part]. Ann. Mus. Civ. Stor. Nat 4: 241-256.
- Emery, C. 1911. Fragments myrmécologiques. Ann. Soc. Entomol. Belg 55: 213-225
- LaPolla, J. S. 2004. Taxonomic review of the ant genus *Pseudolasius* in the Afrotropical region. Journal of the New York Entomological Society 112: 97-105.
- Menozi, C. 1924. Alcune nuove formiche africane. . Ann. Mus. Civ. Stor. Nat. Giacomo Doria 51: 225-227.
- Wu, J. & C. Wang 1995. The ants of China. Beijing: China Forestry Publishing House, 214 pp.
- Xu, Z. 1997. A taxonomic study of the ant genus *Pseudolasius* Emery in China. Zoological Research 18: 1-6.
- Zhou, S. Y. 2001. Ants of Guangxi. Guangxi Normal University Press, Guilin, China. 255 pp.



