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Study of Ant (Formicidae: Formicinae: *Camponotus*) fauna of Medical Hills Jabalpur, Madhya Pradesh

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Abstract
The present paper deals with the Formicinae species collected from Medical hills of district Jabalpur of Madhya Pradesh. A total of five species belonging to genus *Camponotus* are reported. The five species are *Camponotus compressus*, *Camponotus opaciventris, Camponotus angusticollis, Camponotus mitis* and *Camponotus badius*.

Keywords: formicidae, camponotus, pronotum, punctate, tibia

1. Introduction
Ants are categorized into the family Formicidae which falls under superfamily Vespoidea in the order Hymenoptera. There are about 296 genera grouped under 16 subfamilies with more than 15000 species of ants (Bolton, 1994) [6]. According to Holldobler and Wilson (1990) [7], there is enormous diversity of ant fauna which remains to be described. Ants can be found anywhere in the world except Antarctica, Greenland and Iceland. Ant diversity is comparatively high in tropical areas than temperate (Holldobler and Wilson, 1990) [7]. India being a tropical country has a rich diversity of ants and about 652 species of ants have been reported from India (Bharti, 2011) [1]. The present work deals with the *Camponotus* genus of family Formicidae from Medical Hills Jabalpur district of Madhya Pradesh.

Jabalpur district lies in the eastern half of Madhya Pradesh- the central Indian state. Geographically it lies between 23^0 $10^{'}$ North latitude and 79^0 $59^{'}$ East longitudes with a total geographic area of 5211 sq. km. The district lies in the catchment of Narmada- the longest river of Central India. Narmada has its tributaries, viz. Hiran, Gour, Ken and Sone touching the district. Jabalpur with a forest cover of 1078 sq. km i.e. about 20.69 per cent of its geographical area (State of Forest Report, 2003), serves as the corridors for Bandhagrah Tiger Reserve, Kanha Tiger Reserve, Pench Tiger Reserve and Bilaspur Tiger Reserve.

2. Methodology
Two sampling methods namely Pitfall and hand picking were employed for the collection of Formicinae ants from Medical hills of district Jabalpur of Madhya Pradesh. The ants were collected during the months of August and September of 2016. Seventy six individuals belonging to five species of genus *Camponotus* were recorded.

3. Results
Five species of subfamily Formicinae belonging to genus *Camponotus* were collected. The species are *C. compressus, C. opaciventris, C. angusticollis, C. mitis* and *C. badius.* The systematic list and systematic account of the collected fauna is given below.

3.1. Systematic list
Superfamily Vespoidea
Family Formicidae
Subfamily Formicinae
Genus Camponotus Mayr, 1861
1. *Species Camponotus compressus* Fabricius, 1778
2. *Species Camponotus opaciventris* Mayr, 1778
3. *Species Camponotus angusticollis* Jerdon, 1851
4. *Species Camponotus mitis* Smith, 1858
5. *Species Camponotus badius,* (Smith, 1857)

3.2. Systematic account
Genus: *Camponotus* Mayr, 1861

Diagnostic characters
Mandibles triangular or subtriangular, broad toothed masticatory margins; maxillary palpi six jointed, labial palpi four jointed; clypeus trapeziform, not extending to the outer border of the cheeks; antennal carinae sinuate; antennal and clypeal hollows separate; antennae 12-iointed, filiform, originating remote from the posterior border of the clypeus; frontal area small, broader than long; eyes moderately large, placed above the middle line of the head; ocelli absent. thorax anteriorly broad, posteriorly more or less compressed; pro-meso- and meso-metanotal sutures generally distinct; pro- and mesonotum arched, meso-metanotal suture emarginate, metanotum very strongly laterally compressed.

1. *Camponotus compressus* (Fabricius) 1787
1787. *Formica compressa* Fabricius, *Mant. Insect.*, 1: 307.
1903. *Camponotus compress us*, Bingham, *Fauna Brit. India, Hymenoptera*, 2: 351.
1925. *Camponotus (Tanaemyrmex) compressus,* Emery, *Genera Insect.*, 183: 98.

Diagnostic characters
Posterior of head narrow; head broader and elongate than thorax; eyes small; mandibles with seven teeth; the pedicel and abdomen shining; body black and slender; in case of male, head smaller than female; scutellum and mesonotum gibbous; flagellum of the antennte, mandibles and legs usually brown;

clypeus medially vertically carinate; cylindrical scape of antennae; legs long and tibiae prism-shaped; abdomen broad. Length: 16 mm (Fig. 1).

Distribution
India: Assam, Punjab, South India and West Bengal; Elsewhere: Afaric, Burma, Nepal, Philippines and Sri Lanka (Bharti *et al.*, 2009; 2016) [2, 3].

2. *Camponotus opaciventris* Mayr, 1878
1878. *Camponotus opaciventris, Mayr, verh. Zool. bot. Ges. Wien*., 28: 648.
1798. *Camponotus sericeus, Fabr. (Formica) Ent. Syst. Suppl.*, 279.
1851. *Formica cinerascens, Jerd. Madr: Jour. Lit. and Sc.*, 17: 123.

Diagnostic characters
Head broad, round and granular in appearance; body black; occiput transverse; head, thorax and node of pedicel with erect pubescence; clypeus broad, anterior border emarginated in the middle; mandibles with five teeth; front of thorax broad, not compressed posteriorly, the basal face of metanotum flat, sides margined; legs stout and tibiae cylindrical; abdomen broad and globose, with a dense golden pubescence. Length: 11 mm (Fig. 2).

Distribution
India: Most parts of India; Elesewhere: Burma, Pakistan and Srilanka (Bingham, 1903; Bharti *et al.*, 2016) [5, 2].

3. *Camponotus angusticollis* Jerdon, 1851
1851. *Formica angusticollis* Jerdon, *Mad.* J. *Lit. Sci.*, 17: 120.
1863. *Camponotus angusticollis*, Roger, *Ber. Ent. Zeit.*, 7: 3.

Diagnostic characters
Head sub-triangular; clypeus with prominent medial vertical carina; mandibles with six teeth; occiput emarginated; thorax narrow but elongate; legs slend; tibiae compressed and longitudinally; scutellum and mesonotum in front very globous; body black, the flagellum and the apical two joints of the tarsi brownish yellow; abdomen oval and massive. Length: 18 mm (Fig. 3).

Distribution
India: Asam, Western, Southern and Central India; Elsewhere: Burma and Myanmar (Bharti *et al.*, 2009; 2016) [2].

***4. Camponotus mitis* Smith, 1858**
1858. *Camponotus mitis* Smith *(Farmica) cat*., 6: 20.
1802. *Camponotus maculatus*, Fabr., race mitis (Smith), Foreal, *Jour. Bomb. N. H. Soc.*, 7: 230.

Diagnostic characters
Head subtriangular, broad posteriorly, the occiput emarginate; head, abdomen and scape of antennae opaque dark fuscons brown; fagellum of the antennae, thorax and legs yellowish brown; thorax stout; pubescence erect, sparse on the head and thorax, more plentiful on the abdomen, short, fairly close, and recumbent on the legs; node of the pedicel narrower; abdomen comparatively broad, long and massive; femora slightly compressed, legs moderately long, tibiae prism-shaped, longitudinally channeled. Length: 10 – 13 mm (Fig. 4).

Distribution
India: Andaman Nicobar Islands, Karnataka and Goa; Elsewhere: New Guinea and Sri Lanka
(Bingham, 1897; 1903; Bharti *et al.*, 2009; 2016) [3, 4].

5. *Camponotus badius* (Smith, 1857)
1857. *Camponotus badius* Smith (Forniica), *Proc. Linn. Soc.*, 2: 54.

Diagnostic characters
Head black and sub-opaque, little longer than broad, the sides convex, the occiput very slightly emarginate; clypeus broad, tectiform, with a broad median lobe rectangularly produced, its anterior margin denticulate; flagellum of the antennae, mandibles, legs and thorax reddish brown, shaded with fuscous on the thorax above and on the tibiae of the legs; mandibles with seven teeth; thorax subopaque; abdomen shining and smooth; pubescence sparse, erect; node of pedicel thick, oval, convex anteriorly, flat posteriorly; abdomen comparatively broad and massive. Length: length: 9- 12 mm (Fig. 5).

Fig 1: Photographs of Formicinae fauna

Distribution
India: Andhra Pradesh, Haryana, Kerala, Maharashtra and West Bengal*;* Elsewhere: Burma and Sri Lanka (Bharti *et al.*, 2009; 2016) [2, 3].

4. Conclusion
Ants are considered as ecosystem engineers and play an important role in the ecosphere functioning. They play a primordial role in the nutrient cycling and decomposition of organic matter. Hence are part and parcel of a number of food webs in the ecosystem. The present work reports five species of ants viz. *C. compressus*, *C. opaciventris*, *C. angusticollis*, *C. mitis* and *C. badius* belonging to genus *Camponotus* of subfamily Formicinae from Medical Hills of district Jabalpur.

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6. References

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