

Taxonomy and Habitats of *Lepisiota Frauenfeldi* (Mayr 1855) In Jalgaon Maharashtra, India

Surekha Chate

Dept of Zoology,

¹Smt.G.G.Khadse College, Muktainagar - 425306. India.

Email- chatesurekha16@gmail.com

ABSTRACT

Lepisiota Frauenfeldi worker ant species belongs to genus *Lepisiota*, subfamily Formicinae found in Jalgaon city of Maharashtra. Species were identified as per standard methodology suggested by Bolton (1994), Bingham (1903). Based on the profile of body such as head, antennal scrobe over the eye, thorax and abdomen etc. species are recognized. Morphological features include size, colorations, pilosity on the body etc.

Keywords: *Lepisiota Frauenfeldi*, taxonomy, morphology, Jalgaon City.

INTRODUCTION:

Ants belongs to the phylum Arthropoda class insecta and order Hymenoptera. Ants are currently classified in to 21 subfamilies and 283 genera (Bolton 2003). Hymenoptera of largest order of insect it comprises the wasps, bees, ants and sawflies and others. It provides important values to the human being and ecosystem (Suryanto 1993). Formicinae subfamily is cosmopolitan subfamily, which is dominant in temperate regions and common in tropics. Members of *Lepisiota* genus as small black, soil nesting ants (Taylor 2005). Ants are social insect found everywhere except extreme cold and hot regions. According to the needs of ants can modify and manipulate their environment (Bolton 1995). Morphology helps biologist for unique recognition of insect species as compared to close relatives (Chate and Chavan 2019). *Lepisiota Frauenfeldi* is exotic invasive species considered to be significant threat to economy and agriculture industries, environment. They displace native ant species as well as other insects, centipedes and crustaceans, spiders (Queensland gov. 2020). The ant genus *Lepisiota Santschi* 1926 is diverse genera of the subfamily Formicinae with 135 describe species and subspecies (Bolton 2020). Most species spread worldwide in the woodland or savannahs, grassland of the Afrotropical, Indomalayan, and Palearctic region (Brown 2000, Hita Garcia *et.,al.* 2013), where they are found nesting directly under stone, or in rotten wood and ground (Hita Garcia *et.,al.* 2013). The purpose of this study was undertaken the taxonomy and morphology of ant species *Lepisiota Frauenfeldi* from Jalgaon city Maharashtra.

MATERIALS AND METHODS:**Study Area:**

The study was done in Jalgaon city of Maharashtra in which the study site is divided in urban habitat such as hillocks area, garden, vacant place, residential site etc. during years January 2019 to February 2020.

Sample Collection:

Ants sampled were collected from urban habitat includes sites such as hillocks area, garden, vacant place, residential site. In each site study plot of 1 hectare (100 x 100 m) was taken. The ant sampling was carried by handpick, pitfall trap, scented trap, all out search method was in morning 6 to 8 am.

Research Methodology:

Collected ants were sorted and preserved in 70% alcohol and identification was made with the help of stereoscope trinocular microscope based on standard taxonomic keys suggested by Bolton 1994, Holldobler and Wilson 1990, Mathew & Tiwari 2000, and Sheela 2008 etc.

RESULT AND DISCUSSION

During present study species belonging to one genus and subfamily Formicinae were recorded as shown in the following table no. The genus Lepisiota was represented as in the following table no. 1 the genus Lepisiota was represented as follows

Table 1: The genus Lepisiota was represented

Subfamily	Genus	Species
Formicinae	Lepisiota	Lepisiota <i>Frauenfeldi</i>



Dorsal View



Lateral View



Head View

Keys to the species:

Lepisiota Frauenfeldi (Maye 1855)

Family : Formicidae

Subfamily : Formicinae

Genus : *Lepisiota*

Species : *Lepisiota Frauenfeldi*

Taxonomy:**Keys to the subfamily:**

Body with isolated or reduced petiole in between thorax and gaster..... 2

2. Gaster tip has presence of semicircular or circular acidopore, usually guarded by setae, sting absent

..... **Formicinae**

Keys to the Genera:

Node of Pedicel and metanotum is bidentate or bispinous; Antennae 11 segmented.

Keys to the Genus: *Lepisiota*

The *Lepisiota* is renamed as *Lepisiota Santschi*, 1926 by Bolton (1994) in the book world genera of ants. Formerly Genus *Lepisiota* called as *Acantholepis* Mayr, 1861.

Diagnostic Characters:

Head, thorax, legs and petiole of the pedicel is reddish yellow while gaster is dark brown to black in colored. Head, thorax and abdomen is shining, smooth, and highly polished. Pubescence and Pilosity is entirely wanting while few erect long, hairs are present and but more prominent on head, pronotum from above is circular and towards apex of the abdomen. Head is longer than broad from front side, posterior margin nearly rounded; mandibles are narrowed, curved with long, acute apical teeth; clypeus is large and carinate strongly convex; eyes are lateral in position and situated middle of the head; antennae scape are long extending its length beyond the top of head and filiform. Thorax slendered, pronotum is circular from dorsal view, mesonotum is constricted anteriorly and forming a cylindrical neck like structure but widens posteriorly, the meso-metanotal suture is deeply marked and distinct, the metanotal spine is thick and broad at the base; legs are exceptionally long. Node is high and thick, upper margin cut out semicircularly into two very acute long teeth. Gaster is

massive and oval. They are mostly found in less forested and open habitats, such as grasslands, savannas or woodlands.

Size: W: 2.5-3 mm. **Different Character:** They are fast runners on trees, shrubs, herbs and ground.

Distribution: India, Andhra Pradesh, West Bengal, Kerala, Punjab, Uttar Pradesh, Sheela, (2008). Southern Europe and Northern Africa, (Tiwari, 1999).

Bingham (1903) discussed its distribution in India and lots of variation in this species. In Pothwar, Punjab (Pakistan) Bodlah *et. al.* (2017) reported association of two ant species as *Camponotus compressus* (Fabricius, 1787) and *Lepisiota frauenfeldi* (Mayr, 1855) with Psyllid species. *Lepisiota* genus formerly called as *Acantholepis* Mayr, 1861 but now it renamed as *Lepisiota* Santschi, 1926 by Bolton (1994) in the book world genera of ants. This genus is distributed in the Old World and is of moderate in size (Bolton, 2012). The study was done about taxonomy of ant species *Lepisiota frauenfeldi* (Mayr, 1855) from Jalgoan city, as there is no adequate information pertaining on ant of this region.

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REFERENCES:

1. Bolton, B. 2003 Synopsis and classification of Formicidae Mem. Amer. Entomol. Inst., 71: 1 – 370 (Quoted by Fisher 2005).
2. Bolton, B.O. (1994). Identification guide to the ant genera of the world. Harvard University Press, Cambridge, MA. 222 pp.
3. Bolton, B.O. (1994) A new general catalogue of the ants of the world, Harvard University Press, Cambridge, Massachusetts.
4. Bolton B (2020) An online catalog of the ants of the world. <http://antcat.org>. [accessed 9 January 2020].
5. Bingham, C.T. (1903). The Fauna of British India, including Ceylon and Burma Hymenoptera, Vol. II. Ants and Cuckoo-wasps. London and Taylor, 506 pp. 2: 1- 414.
6. Chate, S.D and Chavan, R.J. (2019) Studies on morphology of *Leptogenys processionalis* (Jerdon 1951) (Hymenoptera: Formicidae) from Aurangabad Maharashtra, India

7. Suryanto, D.W.I. (1993). A survey of ants as candidates for potential biology control of pear psylla (*Cacopsylla pyricola* Foerster) in Michigan [Online](Michigan State University) Dissertation Abstracts MAI32/03.
8. Taylor. B (2005). The ants of (sub - saharan) Africa (Hymenoptera: Formicidae) online Publication: <http://www.antbase.org/antsafrica/html>.
9. Queensland gov. 2020).
10. Brown Jr WL (2000) Diversity of ants. In: Agosti D, Majer JD, Alonso LE, Schultz TR (Eds) Ants. Standard Methods for Measuring and Monitoring Biodiversity. Biological diversity Handbook Series. Smithsonian Institution Press, Washington, 45–79.
11. Hita Garcia F, Wiesel E, Fischer G (2013) The ants of Kenya (Hymenoptera: Formicidae) faunal overview, first species checklist, bibliography, accounts for all genera, and discussion on taxonomy and zoogeography. Journal of East African Natural History 101: 127–222. <https://doi.org/10.2982/028.101.0201>
12. Holldobler, B. and Wilson, E. O. 1990. The Ants. Harvard University Press, Cambridge., MA. 733. <https://www.hup.harvard.edu/catalog.php?isbn=9780674040755>
13. Bodlah, I., Bodlah, M.A., Muhammad Tariq Rasheed Tasleem Akhter, Aihetasham, A., and Yousaf., M. (2017). New distributional records of psyllid, *Trioza fletcheri* minor Crawford, 1912 and record of its first association with two ant's species in Pothwar. Asian Journal Agri & Biol. 5(1): 1-6.
14. Bolton, B. 1994. Identification guide to the ant genera of the world. Cambridge. Mass: Harvard University Press., 222.DOI: <https://doi.org/10.1017/S0007485300034453>
15. Sheela. S. 2008. Handbook on Hymenoptera: Formicidae. Z.S.I. <http://faunaofindia.nic.in/PDFVolumes/hpg/036/index.pdf>
16. Mathew, R. and R. N. Tiwari. 2000. Insects: Hymenoptera: Formicidae., State Fauna Series 4 Fauna of Meghalaya 7: 251-409. [https://www.antwiki.org/wiki/images/0/04/Mathew %26 Tiwari 2000.pdf](https://www.antwiki.org/wiki/images/0/04/Mathew_%26_Tiwari_2000.pdf)