

**NEWLY REPORTED GENERA OF ANTS (HYMENOPTERA:
FORMICIDAE) FROM DISTRICT SWAT, PAKISTAN**

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Abstract

Ants fauna of Pakistan is very much diverse but has been poorly identified till now. The study was carried out during the year 2023 to collect and identify the ant fauna of District Swat. The specimens were collected using hand net, aspirator and pitfall trap. Based on the recent collected specimens, 3 genera via *Sphinctomyrmex*, *Simopone* and *Myrcidris* belongs to the sub-families Dorylinae and Pseudomyrmecinae were reported for the 1st time from Swat-Pakistan.

Introduction

Ants are one the most social insects belong to the order Hymenoptera and family Formicidae having around 14,711 described species under 428 genera and 26 sub-families (Bolton, 2011). They are the most persistent and diverse group of social insects present on earth for about 120 M years (Ward, 2007). There are 103 ant species in 35 genera and 7 subfamilies reported from Pakistan (Rasheed *et al.*, 2019).

Ants may be metallic, red, green or black in color (Agosti *et al.*, 2000). Because of the rich abundance, ants play a vital role in many terrestrial ecosystems. They act as decomposers, nutrient recyclers, predators, pollinators, seed dispersal agents and feed of birds and other animals (Folgarait, 1998).

Ants are valuable in several ways. In South Africa and America, the army ants particularly are used as surgical processes for sutures (Gottrup and Leaper, 2004). They are also used in

collecting herbal tea in South Africa (Downes and Laird, 1999). Ants on the other hand are harmful and act as pest (Bharti, 2011). They feed on plant seeds, mealy bug and aphid excretions, plants excretion, honey, nectar and other useful insects (Gadagkar *et al.*, 1993). Their sting is considered the most painful, especially bullet ants (Clarke, 1986).

In Asia, about one fourth of the whole species population of Formicidae is present (Ogata, 1991). Pakistan has an esteemed diversity and displays association with that of Ethiopian, Palearctic and Oriental fauna (Umair *et. al.*, 2012).

Material and Methods

Ants specimens were collected from different location of district Swat during 2023. The specimens were collected by using hand net, aspirator and hand picking. The collected specimens were then killed, mounted and observed under stereo microscope for identification. The specimens were photographed with the help of camera attached to microscope.

Results and Discussion

In the current study 3 genera via *Sphinctomyrmex*, *Simopone* and *Myrcidris* belonging to the sub-families Dorylinae and Pseudomyrmecinae were reported.

Genus *Sphinctomyrmex* Mayr, 1866 (Fig 1-3)

Sphinctomyrmex Mayr, 1866. Type-species: *S. stali*, by monotypy. pp. 895.

Diagnosis: *Sphinctomyrmex* workers distinguished from other Dorylinae by: Body reddish brown, 2.4-3.4mm in length; head without scrobes; antenna 12 segmented; palpal formula 3:3; mesosoma with groove absent; metasoma with pygidium long, setae modified and well developed; metastomal segment 5 and 6 usually with strong constriction in-between.

Materials examined: Pakistan: KP; Swat, Miadm, 2♀. 35° 22'N, 72° 10'E. 10.v.2023. nauman Ahmad.

Distribution: *Sphinctomyrmex* is considered neotropical ant and is documented from Santa Catarina, Sao Paulo and Amazon state Brazil (Boroweic, 2016) and Pakistan (new record).

Remarks: This genus was 1st described in 1866 by Mayr and later on Wheeler (1930) and Santschi (1918) synonymized it. This specimen is reported as new to the fauna of Pakistan.

Genus *Simopone* Forel, 1891 (Fig 4-6)

1891. *Simopone* Forel. Type-species: *S. grandidieri*, by monotypy. pp. 139.

Diagnosis: *Simopone* workers can be identified by: Body brownish black, 1.5 to 2.4 mm in length; antenna 11 segmented; mandibles elongate, triangular; ocelli present; mid tibia without spur; hind leg with basitarsus usually with a groove; propodeum triangular; metasomal segment 5 and 6 usually without constriction.

Distribution: China, Vietnam, Philippines, Singapore, Thailand and New Guinea (Borowiec, 2016) and Pakistan (new record).

Materials examined: Pakistan: KP; Swat, Charbagh, 5♀. 35° 22'N, 72° 10'E. 16.v.2023. Dadahara, 3♀. 34° 73'N, 72° 25'E. 17.v.2023. Nauman Ahmad.

Remarks: Forel in 1891 described this genus for the 1st time. It can be differentiated from *Sphinctomyrmex* by the antenna having 11 segments and without metasomal constriction between 5th and 6th segment. From Pakistan and Khyber Pakhtunkhwa, this genus is reported as new.

Genus *Myrcidris* Ward, 1990 (Fig 7-8)

1990. *Myrcidris* Ward. Type-species: *M. epicharis* by original designation. pp. 465.

Diagnosis: *Myrcidris* can be identified by: Body dark brown, 7 to 9mm in length; antenna 11 segmented; palpal formula 5:3; teeth's usually 4 evenly spaced; ocelli usually present; petiole high and short; spur formula 2 (1 simple, 1 barbulate), 2 (1 simple, 1 pectinate); sting present; pronotum fused with mesonotum; sulcus on hind leg with sulcus on basitarsus; frontal carina usually separated.

Distribution: They are only distributed in Neotropical zone. It consists of only 1 valid species throughout the world (Bolton, 2019) and Pakistan (new record).

Materials examined: Pakistan, KP; Swat, 5♀. 35° 22'N, 72° 10'E. 14.vi.2019. Najeeb Ullah

Remarks: This genus was reported first in 1990 by Ward. This genus was described from a single species *Myrcidris epicharis* Ward but it was originally discovered by Woody Benson. They live in hollow stems of an Amazonian ant-plant. This genus is reported from Pakistan for the first time.

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Conflict of Interest: The authors declared that they have no conflict of interest.



Fig 1. Genus *Sphinctomyrmex*, dorsal view



Fig 2. Genus *Sphinctomyrmex*, anterior view



Fig 3. Genus *Sphinctomyrmex*, lateral view



Fig 4. Genus *Simopone*, dorsal view



Fig 5. Genus *Simopone*, anterior view



Fig 6. Genus *Simopone*, lateral view



Fig 7. Genus *Myrcidris*, dorsal view



Fig 8. Genus *Myrcidris*, lateral view

References

- Agosti, D., J.D. Majer, J.E. Alonso and T.R. Schultz. 2000. *Ants: Standard methods for measuring and monitoring biodiversity*. Smithsonian Inst. Press, Washington, D.C.
- Bharti, H. 2011. *Ants of India*. [http://www. antdiversityindia.com](http://www.antdiversityindia.com).
- Bolton, B. 2011. *Bolton's Catalogue and Synopsis*, in <http://gap.entclub.org/> Version: 1.
- Bolton, B. 2019. *Bolton's catalogue and synopsis version: August 2019*.
- Borowiec, M.L. 2016. Generic revision of the ant subfamily Dorylinae (Hymenoptera, Formicidae). *ZooKeys*. 608: 1–280.
- Carroll, C.R. and D.H. Janzen. 1973. Ecology of foraging by ants. *Ann. Review Ecol.Syst.* 4(1): 231-257.
- Clarke, P.S. 1986. The natural history of sensitivity to jack jumper ants (Hymenoptera: Formicidae: Myrmeciapilosula) in Tasmania. *Med. J. Aust.* 145: 564-566.
- Downes, D. and S.A. Laird. 1999. Innovative mechanisms for sharing benefits of biodiversity and related knowledge. *The Center for Int. Environ. Law*. <http://www.ciel.org/Publications/InnovativeMechanisms>.
- Folgarait, P.J. 1998. Ant biodiversity and its relationship to ecosystem functioning: a review. *Biodiversity and Conservation*. 7: 1221–1244.
- Forel, A. 1893. Sur la classification de la famille des Formicides, avec remarques synonymiques. *Ann. Soc. Entomol. Belg.* 37: 161-167.
- Gadagkar, R., P. Nair and D.M. Bhat. 1993. Ant species richness and diversity in some selected localities in Western Ghats, India. *Hexapoda*. 5(2): 79-94.

- Mayr, G. 1866. Myrmecologische Studien., Verhandlungen der Zoologisch Botanischen Gesellschaft in Wien. pp. 649-77.
- Ogata, K. 1991b. A generic synopsis of the poneroid complex of the family Formicidae (Hymenoptera). Part II. Subfamily Myrmicinae. Bull. Inst. Trop. Agric. Kyushu Univ. 14:61-149.
- Rasheed M.T., I. Bodlah, A.G. Fareen, A.A. Wachkoo, X. Huang and S.A. Akbar. 2019. A Checklist of Ants (Hymenoptera: Formicidae) in Pakistan. Sociobiology, 66(3): 426-439.
- Umair, M., A. Zia, M. Naeem and M.T. Chaudhry. 2012. Species composition of ants (Hymenoptera: Formicidae) in Potohar Plateau of Punjab Province, Pakistan. Pak. J. of Zool. 44(3):699-705.
- Ward, P.S. 1990. The ant subfamily Pseudomyrmicinae, genetic revision and relation to other formicids. Syst. Entomol. 15: 449-489.
- Ward, P.S. 2007. Phylogeny, classification, and species-level taxonomy of ants (Hymenoptera: Formicidae). Zootaxa.1668: 54.
- Wheeler, W.M. 1930. Two new genera of ants from Australia and the Philippines. Contribution from the entomological laboratory of the Bussey institution, Harvard University.No. 33.41-47.