



SOME RECORDS OF ANT (HYMENOPTERA: FORMICIDAE) FROM DISTRICT POONCH, AZAD JAMMU AND KASHMIR, PAKISTAN

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Key words:

Ant, Hymenoptera, Formicidae, Poonch, Azad Jammu and Kashmir, Pakistan

ABSTRACT

In the present study 12 species belonging to 10 genera of three subfamilies namely; Formicinae, Myrmicinae and Ponerinae under family Formicidae are reported from district Poonch, Azad Jammu and Kashmir. Among the recorded species, six species belonging to Formicinae, four in Myrmicinae, and two species in Ponerinae. All the 12 species are reported first time for district Poonch, Azad Jammu and Kashmir. however, only one species namely, *Odontoponera transversa* (Smith, 1857) of subfamily Ponerinae is new record from Pakistan.

1. INTRODUCTION

The family Formicidae of the order Hymenoptera contains a group of social insects known as ants. Millions of individuals make up the colonies in which they dwell. In the symbiotic relationship, they also play an important role between plants, arthropods, fungi, and microbes (Hölldobler & Wilson, 1990; Clarke & Kitching, 1995; Jolivet, 1996; Schultz & McGlynn, 2000). In trophic soil, ants perform more crucial roles than earthworms such as nutrient recycling, biotic interactions, scavenging, pollination, and soil aeration (Carroll & Janzen, 1973; Hölldobler & Wilson, 1994; Folgarait, 1998; Risch & Jurgensen, 2008; Bahrti, 2011).

Ants act as bio-control agents (Hölldobler & Wilson, 1990; Latifian et al., 2018) and also known as the largest group of predators for termite and arthropod in World

(El Keroumi et al., 2010; Symondson, 2002; Sanders & Veen 2011; Fernandes et al., 2010). Ants also act as a pest in many crops. Some ants injure the agricultural as well as horticultural crops and acquire the phloem from injured crop plants to obtain carbohydrates (Stewart & Vinson, 1991). In addition to being a host for tiny mammals and birds, they pose a threat to humanoid health by spreading illnesses like typhoid fever, dysentery, and tuberculosis. The primary causes of these illnesses are ants' crawling and feeding habits over mucus coughed up and faeces (Brown, 1965). Monomorium ants also irritated the Humans and domestic animals (Vander Meer, 1990; Solis et al., 2010; Vinson, 1986). Some ants, such as bullet and fire ants include peptidine alkaloids in their poison sacs, which are harmful to those who are overly sensitive (Bharti, 2011; Clarke, 1986; Stafford, 1996).

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Family Formicidae holds approximately 1500 species under 22 subfamilies (Hölldobler & Wilson, 1990; Guénard, 2013). Hosoiishi and Ogata reported 145 species and 61 subspecies under a single genus *Crematogaster* from Asia (Hsoishi & Ogata, 2009). Sharaf et al. (2018) recorded 123 species under 24 genera belonging to four subfamilies included two new to science species namely *Aphaenogaster sarae* and *Aphaenogaster asmae* from Oman (Rasheed et al., 2019). Rasheed et al. reported 103 species of ant fauna, belonging to 35 genera under seven subfamilies from Pakistan. Recently Khudadad et al. (2021) reported 28 species, under 18 genera of family Formicidae from district Mansehra, Pakistan from which six species reported first time from Pakistan Usman et al. (2017) reported 17 species of ants from District Karak, Khyber Pakhtunkhwa Pakistan. Bodlah et al. (2016) recorded two species namely *Tetraponera allaborans* and *T. nigra* from district Rawalpindi and Islamabad, Pakistan. Ahmed et al. (2013) reported seven species from Quetta, Baluchistan, Pakistan. Umair et al. (2012) reported 21 species of the family Formicidae from Potohar Plateau of Pakistan, eight of these were economically important pests.

Azad Jammu and Kashmir, Pakistan has an importance in biogeography position but the taxonomic studies of ant's fauna of Azad Jammu and Kashmir, have been badly neglected. Keeping in view the importance of ants the present study was planned for exploring ant species of district Poonch, Azad Jammu and Kashmir, Pakistan.

2. MATERIALS AND METHODS

Collection of ants was made by conducting many surveys during 2013 in agronomic crops, woodlands, vegetables, blooming plants, nurseries, and open fields from the different localities of district Poonch. Manually and Pitfall traps were used to collect the ants' specimens. After being properly stretched and pinned, collected specimens were deposited in wooden boxes along with tags. These specimens were identified up to species level by using the available literature, taxonomic keys and books. The samples were further verified by using an identified collection kept at the National Insect Museum (NIM), National Agricultural Research Center (NARC), Islamabad Pakistan. Identified specimens with complete detail were deposited in Department of Entomology, University of Poonch Rawalakot (UPR), Azad Jammu and Kashmir. The topography of district Poonch is primarily mountainous and hilly, with plains, valleys, freshwater reservoirs, stunning lakes, rivers. Rainfall occurs in this area in both winter and summer seasons and recorded on average 1400 mm.

3. RESULTS AND DISCUSSION

Family Formicidae Latreille, 1809 Subfamily Formicinae Latreille, 1809

Genus *Camponotus* Mayr, 1861

1. *Camponotus compressus* Fabricius, 1787

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Khaigala, 2 workers, 11.vi.2013, 3 workers, 28.vii.2013, 2 workers, 2.vi.2013; Alisojal, 2 workers, 28.vii.2013; Rawalakot, 1 worker, 6.vi.2013; Chaprian, 3 workers, 4.vi.2013; Hajira, 1 worker, 10.vi.2013, leg. Farzana; ex UPR.

Remarks: Earlier Umair et al. and Usman et al. reported this species from different localities of Pakistan e.g., Khyber Pakhtunkhwa: Karak; Punjab: Rawalpindi, Taxila, Gujar Khan, Kahuta, Islamabad (Usman et al., 2017; Umair et al., 2012).

2. *Camponotus oblongus* Smith, 1858

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Khaigala, 2 workers, 11.vi.2013; Topa, 2 workers, 16.iii.2013, leg. Farzana; ex UPR.

Remarks: Umair et al. and Rasheed et al. already reported this species from Punjab: Rawalpindi (Rasheed et al., 2019; Umair et al., 2012).

Genus *Formica* Linnaeus, 1758

3. *Formica fusca* Linnaeus, 1758

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Paniola, 3 workers, 2.iv.2013; Alisojal, 2 workers, 28.vii.2013; Rawalakot, 1 worker, 6.vi.2013; Hajira, 1 worker, 27.vii.2013, leg. Farzana; ex UPR.

Remarks: Earlier Rasheed et al. reported this species from Gilgit-Baltistan (Karakorum) (Rasheed et al., 2019).

Genus *Lepisiota* Santschi, 1926

4. *Lepisiota frauenfeldi* (Mayr, 1855)

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Paniola, 6 workers, 15.iii.2013; 3 workers, 17. v.2013; Alisojal, 4 workers, 11.vi.2013; Rawalakot, 4 workers, 15.iii.2013; Chaprian, 2 workers, 4.vi.2013; Mandol, 3 workers, 27.vii.2013; Thorar, 2 workers, 16.vi.2013; Banjosa, 4 workers, 17.iii.2013; 4 workers, 8.vi.2013, leg. Farzana; ex UPR.

Remarks: Earlier Umair et al. described this species from Potohar Plateau of Pakistan (Umair et al., 2012).

Genus *Polyrhachis* Smith, 1857

5. *Polyrhachis hodgsoni*, Forel, 1902

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Hajira, 2 workers, 10.vi.2013; 1 worker, 27.vii.2013; Alisojal, 3 workers, 28.vii.2013; Rawalakot, 4 workers, 2 workers, 10.vi.2013; Banjosa, 2

workers, 17.vi.2013; 3 workers, 19.iv.2013; Topa, 3 workers, 16.iii.2013, leg. Farzana; ex UPR.

Remarks: Earlier Umair et al. reported this species from Pakistan (Islamabad) (Umair et al., 2012).

6. *Polyrhachis grisescens* Emery, 1895

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Khaigala, 3 workers, 11.vi.2013, leg. Farzana ex UPR.

Remarks: This species already reported by Rasheed et al. from Kohat, Pakistan (Rasheed et al., 2019).

Subfamily Myrmicinae

Genus *Crematogaster* Lund, 1831

7. *Crematogaster rothneyi* Mayr, 1878

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Khaigala, 3 workers, 11.vi.2013; 1 worker, 3.ix.2013; Paniola, 5 workers, 15.iii.2013; Alisojal, 1 worker, 11.vi.2013; Banjosa, 3 workers, 11.iii.2013; 2 workers, 19. v.2013; Hajira, 2 workers, 10.vi.2013; Thorar, 2 workers, 16.iii.2013; 3workers, 18.v.2013, leg. Farzana; ex UPR.

Remarks: This species was already reported from Potohar Plateau of Pakistan [31]. Most recently, Usman et al. recorded this species from Karak district Khyber Pakhtunkhwa province of Pakistan (Usman et al., 2017).

Genus *Holcomyrme* Mayr, 1879

8. *Holcomyrme scabriceps* Mayr, 1878

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Khaigala, 3 workers, 11.vi.2013; 5 workers, 20.vii.2013; Hajira, 5 workers, 10.vi.2013; Thorar, 2 workers, 16.iii.2013; 6 workers, 3.iv.2013; Mandol, 3 workers, 10.vi.2013; 2 workers, 27.vii.2013; 3 workers, 16. viii.2013; Banjosa, 2 workers, 17.iii.2013; 5 workers, 4.iv.2013, leg. Farzana; ex UPR.

Remarks: This species was previously reported by Umair et al. from Potohar Plateau and Usman et al. from Karak district, Khyber Pakhtunkhwa province, Pakistan (Usman et al., 2017; Umair et al., 2012).

Genus *Monomorium* Mayr, 1855

9. *Monomorium fossulatum* Emery, 1894

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Khaigala, 2 workers, 11.vi.2013; 3 workers, 18. viii.2013; Alisojal, 5 workers, 28. viii.2013; 2 workers, 3.ix.2013, Chaprian, 3 workers, 17.iii.2013; 02 workers, 4.iv.2013; 3 workers, 8.v.2013, Hajira, 5 workers, 27.vii.2013; Thorar, 1 worker, 16.iii.2013; 2 workers, 10.vi.2013, leg. Farzana; ex UPR.

Remarks: Most recently, Usman et al. reported this species from Karak district, Khyber Pakhtunkhwa province, Pakistan (Usman et al., 2017).

Genus *Pheidole* Westwood, 1839

10. *Pheidole latinoda* Roger, 1863

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Paniola, 3 workers, 15.iii.2013; 1 worker, 17. v.2013; 2 workers, 6.vi.2013; Alisojal, 1 worker, 11.vi.2013; Thorar, 02 workers, 3.iv.2013, leg. Farzana; ex UPR.

Remarks: Recently, Rasheed et al. reported from Khyber Pakhtunkhwa: Charsadda, Umerzai (Rasheed et al., 2020).

Subfamily Ponerinae

Genus *Myopopone* Roger, 1861

11. *Myopopone moelleri* Bingh, 1860

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Khaigala, 2 workers, 11.vi.2013; 5 workers, 28. viii.2013; Paniola, 4 workers, 15.iii.2013; 5 workers, 6.vi.2013; Hajira, 1 worker, 10.vi.2013; Mandol, 2 workers, 27.vii.2013; Banjosa, 2 workers, 17.iii.2013; Topa, 2 workers, 3.iv.2013, leg. Farzana; ex UPR.

Remarks: Recently Khudadad et al. reported this species from district Mansehra, Khyber Pakhtunkhwa, Pakistan (Khudadad et al., 2021).

Genus *Odontoponera*, Mayr, 1862

12. *Odontoponera transversa* (Smith, 1857)

Material Examined: AZAD JAMMU AND KASHMIR: Poonch: Hajira, 1 worker, 2.ix.2013, leg. Farzana; ex UPR.

Remarks: New record for Pakistan as well as district Poonch of Azad Jammu and Kashmir.

4. CONCLUSION

Ants (Hymenoptera: Formicidae) are advantageous and damaging insects. Ants damage yields, seeds, leaves, and grassland. They are good pollinators, decomposers, and scroungers. Ants perform symbiotic relationships with mealy bugs, aphids, fungi and Lepidoptera insects. In Pakistan small work has been done on its taxonomy. The present study reported 12 species under 10 genera in three subfamilies: six species under four genera of subfamily Formicinae, four species belong to four genera of subfamily Myrmicinae, and two species under two genera of subfamily Ponerinae, from District Poonch, Azad Jammu and Kashmir. Out of the 12 species, one species *Odontoponera transversa* (Smith, 1857) of subfamily Ponerinae is new record for Pakistan.

5. CONFLICT OF INTEREST

All authors have declared that there is no conflict of interests regarding the publication of this article.

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Table 1. STATUS OF ANTS FAUNA FROM DISTRICT POONCH, AZAD JAMMU AND KASHMIR, PAKISTAN

Family	Sub-family	Genus	Species	Occurrence Status
Formicidae	Formicinae	<i>Camponotus</i>	<i>Camponotus compressus</i>	New - Poonch
			<i>Camponotus oblongus</i>	New – Poonch
		<i>Formica</i>	<i>Formica fusca</i>	New - Poonch
		<i>Lepisiota</i>	<i>Lepisiota frauenfeldi</i>	New – Poonch
		<i>Polyrhachis</i>	<i>Polyrhachis hodgsoni</i>	New – Poonch
			<i>Polyrhachis grisescens</i>	New - Poonch
	Myrmicinae	<i>Crematogaster</i>	<i>Crematogaster rothneyi</i>	New – Poonch
		<i>Holcomymex</i>	<i>Holcomymex scabriceps</i>	New – Poonch
		<i>Monomorium</i>	<i>Monomorium fossulatum</i>	New – Poonch
		<i>Pheidole</i>	<i>Pheidole latinoda</i>	New - Poonch
	Ponerinae	<i>Myopopone</i>	<i>Myopopane moelleri</i>	New – Poonch
		<i>Odontoponera</i>	<i>Odontoponera transversa</i>	1st – Pakistan New – Poonch
1	3	10	12	01–New to Pakistan, 12–New to Poonch, Azad Jammu and Kashmir