



FAUNISTIC STUDY OF BEES (HYMENOPTERA: APOIDEA) FORM QUETTA, PAKISTAN

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ARTICLE INFORMATION

Article History:

Received: 15th Nov. 2019

Accepted: 28th Dec. 2019

Published online: 29th April 2020

Author's contribution

M.A.R. & S.D design the study S.D, collected the samples M.A.R & M.Q identified the specimens M.Q & M.A.R helped review literature I.A.K designed the manuscript Q.U complied the whole data, G.P. & S.U finalized the manuscript.

Key words:

Hymenoptera, Bees, Apoidea, Quetta, Baluchistan, Pakistan

ABSTRACT

In the past, historical data on bees of Pakistan have been compiled by different workers. This paper based on previous collections of bees reported from Quetta, Pakistan and recent collection from Quetta and its vicinities. A total of 92 species from five families of Apoidea, namely Andrenidae, Apidae, Colletidae, Halictidae and Megachelidae are listed in this paper. Out of these, 82 species reported from literature, while eight species and two unidentified species i.e. *Megachile* sp. and *Icterantheidium* sp. are reported under seven genera of three families, namely Apidae, Halictidae, Megachilidae. Genus *Icterantheidium* Michener, 1948 with its unidentified species is new to Quetta. Alleight reported species are new to Quetta, out of these eight five species, namely *Ceratinabinghami* Cockereli, 1908, *Thyreus ramosus* Lapeletier, 1841, *Halictus vishnu* Cameron, 1897, *Halictus lucidipennis* (Smith, 1853), *Pseudoanthidium orientale* (Bing, 1897) are new to Boluchistan. Whereas *P. orientale* (Bing, 1897) is first time reported from Pakistan and genus *Icterantheidium* first time reported from Quetta with its unidentified species.

1. INTRODUCTION

Bees (Apoidea: Anthophila) play an essential role in natural and agricultural ecosystems as pollinators. Beside pollination their few species have countless in honey production and other value added products form hive [1-2]. They found in divers habitats on all landmasses excluding Antarctica. Reflecting of historical studies of bees from Pakistan, some noteworthy work on bees in Pakistan during last centuries were mostly undertaken by researchers [3-16], Recently [17] compiled bee fauna of Pakistan, while [18] consolidated the work of [17] and added new records on bees of Pakistan.

However, there is decline in bee fauna throughout the world due to changes in landscape structure such as deforestation, intensive agriculture and invasion of alien bee species [19-21]. Presently no valid species is described from Pakistan. In present paper bee fauna of Quetta, Boluchistan is reported which included past and present records of bees from Quetta and its vicinities.

Quetta is positioned at 30°01'-30°28' N and 66°41'-67°17' E. Murdar, Mashlakh, Zarghoon and Chiltan are well known mountain of Quetta. The Climate of Quetta is cold and hot in winter and summer respectively. The major crops are wheat, barley, cumin, fodder, vegetables, onion, and potato while major fruits are apricot, apple, cherry, grapes, peach, pear, plum, pomegranate, including melons.

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2. MATERIALS AND METHODS

Bees collection was made from 04 regions of Quetta Baluchistan and its vicinities, namely Balochistan Agricultural and Research Development Center (BARDC), Alama Iqbal Open University (AIOU), Shabaz Park and HazarGhanjiChiltan National Park. Bees were collected during April to July 2015, by net sweeping and pan traps. Specimens were identified through available literature, after identification, identified bees were confirmed by comparison with housing species of bees at National Insect Museum and Insect Pest Informatics (NIMIPI), National Agricultural Research Center (NARC), Islamabad, Pakistan. Bee species reported in various literatures are also included. A combine list is presented at Table-1.

3. RESULTS AND DISCUSSION

Under Hymenopterous superfamily Apoidea, 92 species are reported in five families, namely Andrenidae, Apidae, Colletidae, Halictidae and Megachilidae. Out of 92 species, 82 species are reported from literature while 10 species are recorded from 203 newly collected bee specimens from study areas. From newly collected 203 specimens eight (08) species and two unidentified species under seven genera of three families, namely Apidae, Halictidae, Megachilidae. Out of eight reported species, one species *Pseudoanthidium orientale* [3] under genus *Pseudoanthidium* Fabricius, 1804 of family Megachilidae recorded first time from Pakistan. However, all newly identified seven species are new to Quetta. Family Apidae represented five species, while two species represented family Halictidae. Notable discoveries from newly collected bees are mentioned below. Detail checklist of 92 species is given in Table-1.

Family Apidae

Genus *Apis* (Linnaeus, 1767)

[1] *Apis cerana* Fabricius, 1793

Material: Shabaz Park, 16.iv.2015, 2♀; Leg. S. Durrani. AIOU CAMPUS, 20.iv.2015, 2♀; Leg. S. Durrani. BARDC, 24.v.2015, 3♀; Leg. S. Durrani. HazarGhanjiChiltan National Park, 28.iv.2015, 2♀; Leg. S. Durrani.

Remarks: New record for Quetta. This species is also reported from Haripur, Khanpur Murree and Swabi [22-24].

Distribution: Widely distributed in Afghanistan, Bangladesh, Bhutan, China, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Papua New Guinea, Russia, Thailand and Vietnam [25-27].

Genus *Ceratina* Latreille, 1802

[2] *Ceratinabinghami* Cockereli, 1908

Material: Shabaz Park, 18.v.2015, 2♀; Leg. S. Durrani. AIOU Campus, 7.vi.2015, 2♀; Leg. S. Durrani. BARDC, 8.iv.2015, 2♀; Leg. S. Durrani. HazarGhanjiChiltan National Park, 12.iv.2015, 2♀; Leg. S. Durrani.

Remarks: First time recorded from Quetta as well as from Balochistan. However, this species have been reported from different areas of Pakistan such as Attock, Chakwal, Islamabad, Jehlum, Multan and Rawalpindi [18, 28, 29].

Distribution: India, Pakistan, Myanmar and Sri Lanka, [18, 27-30].

Genus *Thyreus* Panzer, 1806

[3] *Thyreus ramosus* Lepeletier, 1841

Material: Shabaz Park, 18.v.2015, 3♀; Leg. S. Durrani. AIOU Campus, 24.vii.2015, 1♀; Leg. S. Durrani. BARDC, 12.vii.2015, 1♀; Leg. S. Durrani. HazarGhanjiChiltan National Park, 28.iv.2015, 2♀; Leg. S. Durrani.

Remarks: First time reported from Quetta as well as from Balochistan. Already this species have been reported from Pakistan [9, 17, 18]. However, recently [31] reported this species from Chakwal, Jehlum and Rawalpindi districts of Potohar region.

Distribution: Pakistan, India, Myanmar, Sri Lanka, Egypt, South Africa, Europe, Arabia and Afghanistan [3, 32, 9, 18, 26].

[4] *Xylocopa aestuans* Gribodo, 1884

Material: Shabaz Park, 18.v.2015, 1♂; Leg. S. Durrani. HazarGhanjiChiltan National Park, 28.iv.2015, 1♂; Leg. S. Durrani.

Remarks: Earlier reported from Balochistan: Makran coast and Pasni, however, new record for Quetta. This species was also reported from Chakwal, Dadu, Faisalabad, Karachi, Karore range, Khewara, Lahore, Peshawar, Rawalpindi, Shahapur, Skrand, Tandojam, Tank and Wazirabad [23, 17, 18].

Distribution: Egypt, India, Myanmar, Nepal, Pakistan, UAE and Southeast Asia [3, 33, 16, 27].

Genus *Xylocopa* Latreille, 1802

[5] *Xylocopa fenestrata* Fabricius, 1798

Material: Shabaz Park, 16.iv.2015, 1♂; Leg. S. Durrani. AIOU Campus, 20.v.2015, 2♀; Leg. S. Durrani. BARDC, 8.v.2015, 3♀; Leg. S. Durrani.

Remarks: New record for Quetta. Earlier this species was reported from Makran, Naushki, and Pasni areas of Balochistan. Also reported from Attock, Chakwal, Gujrat, Jehlum, Peshawar, Rawalpindi, Sahiwal, Sargodha, Karachi and Tandojam [1, 10, 12, 13, 15, 18, 31].

Distribution: Afghanistan, Brazil, China, Ethiopia, Iran, Iraq, India, Israel, Sri Lanka, Madagascar, Mauritius, Myanmar, Nepal, Pakistan, Russia, and northeast to the Arabian Peninsula, [31, 33, 34, 32, 35, 18, 26, 27].

Family Halictidae

Genus *Halictus* Latreille, 1804

[6] *Halictus vishnu* Cameron, 1897

Material: Shabaz Park, 2.v.2015, 5 adults, Leg. S. Durrani. BARDC, 8.iv.2015, 1♂; Leg. S. Durrani. Hazar Ghanji Chiltan National Park, 12.iv.2015, 3♀; Leg. S. Durrani.

Remarks: New record for Quetta as well as for Balochistan. Earlier this species was reported from Pakistan [17,18].

Distribution: Pakistan [17, 18].

Halictus lucidipennis (Smith, 1853)

Material: Quetta, AIOU Campus, 20.iv.2015, 2♀; Leg. S. Durrani. BARDC, 8.iv.2015, 3♀; Leg. S. Durrani.

Remarks: First time reported from Quetta as well as from Balochistan. Earlier reported this species from Pakistan [17,18].

Distribution: India, Iran, Muscat, Pakistan, Sri Lanka and Sudan [30, 35, 18].

Family Megachilidae

Genus *Icteranthidium* Michener, 1948

[7] *Icteranthidium* sp.

Material: Shabaz Park, 16.iv.2015, 3♀; Leg. S. Durrani. BARDC, 26.v.2015, 1♀; Leg. S. Durrani.

Remarks: This is the first record of this genus from Quetta as well for Balochistan. However, this genus has been reported from Pakistan [17,36, 18]. **Distribution:** India and Pakistan [34,36].

Genus *Megachile* Latreille, 1802

[8] *Megachile* sp.

Material: Shabaz Park, 1.iv.2015, 1♀; Leg. S. Durrani.

Remarks: One unidentified species of this genus was collected from Shabaz Park Quetta.

Distribution: India, Pakistan and Sri Lanka [34, 30,18].

Genus *Pseudoanthidium* Fabricius, 1804

[9] *Pseudoanthidium orientale* [3]

Anthidium orientale [3]

Material: Shabaz Park, 4.v.2015, 1♀; Leg. S. Durrani. AIOU Campus, 24.v.2015, 1♀; Leg. S. Durrani. BARDC, 13.viii.2015, 1♀; Leg. S. Durrani. Hazar Ghanji Chiltan National Park, 28.iv.2015, 1♀; Leg. S. Durrani.

Remarks: *Pseudoanthidium orientale* belongs to the tribe Anthidiini Ashmead, 1899 under subfamily

Megachilinae Latreille, 1802. This is a new genus for Balochistan and new species record for Pakistan. However, earlier only one species *Pseudoanthidium scapulare* (Latreille, 1809) syn. *Anthidium scapulare* Latreille, 1809 was reported by [17] from unknown locality of Pakistan.

Distribution: India, Myanmar, Pakistan, Thailand, [34, 37, 2].

4. CONCLUSION

In this paper, eight (08) species and two unidentified species under seven genera of three families, namely, Apidae, Halictidae, Megachilidae have been reported. Among these, genus *Icteranthidium* Michener, 1948 is new to Quetta and Balochistan. Out of eight, one species *Pseudoanthidium orientale* [3] under the genus *Pseudoanthidium* Fabricius, 1804 of family Megachilidae is also recorded first time from Pakistan and seven newly reported species are new to Quetta. This result showed that the Baluchistan has diverse fauna of bees comprising on Afrotropical, Palearctic as well as on Oriental realms. Further studies are suggested to explore the new species in the province of Baluchistan.

5. CONFLICT OF INTEREST

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

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Table- 1 Checklist of the Bees of Quetta

The following list is compiled from bees of Pakistan [34, 36] and bee collected from study areas of Quetta and its vicinities

Sr. #	Taxon	
FAMILY ANDRENIDAE		
1.	<i>Andrenaheteropoda</i> Cockerell, 1922	
2.	<i>Andrenaniveobarbata</i> / <i>niveo-barbata</i> Nurse, 1904	
3.	<i>Andrenapraecocella</i> Cockerell, 1917	
4.	<i>Andrena</i> (<i>Carandrena</i>) <i>cara</i> Nurse, 1904	
5.	<i>Andrena</i> (<i>Hoplandrena</i>) <i>trimmerana</i> (Kirby, 1802)	
6.	<i>Andrena</i> (<i>Melandrena</i>) <i>cineraria</i> Linnaeus, 1758	
7.	<i>Andrena</i> (<i>Micrandrena</i>) <i>collata</i> Nurse, 1904	
8.	<i>Andrena</i> (<i>Lepidandrena</i>) <i>flagella</i> Nurse, 1904	
9.	<i>Andrena</i> (<i>Melandrena</i>) <i>marmora</i> Nurse, 1904	
10.	<i>Andrena</i> (<i>Parandrenella</i>) <i>legata</i> Nurse, 1904	
11.	<i>Andrena</i> (<i>Plastandrena</i>) <i>balucha</i> Nurse, 1904	
12.	<i>Andrena</i> (<i>Plastandrena</i>) <i>hera</i> Nurse, 1904	
13.	<i>Andrena</i> (<i>Plastandrena</i>) <i>peshinica</i> Nurse, 1904	
14.	<i>Andrena</i> (<i>Taeniandrena</i>) <i>wilkella</i> Kirby, 1802	
15.	<i>Andrena</i> (<i>Trachandrena</i>) <i>quettensis</i> Cockerell, 1917	
16.	<i>Andrena</i> (<i>Ulandrena</i>) <i>satellita</i> Nurse, 1904	
17.	<i>Andrena</i> (<i>Zonandrena</i>) <i>flavipes</i> Nurse, 1904	
18.	<i>Camptopoeum</i> (<i>Camptopoeum</i>) <i>clypeare</i> Morawitz, 1893	
19.	<i>Camptopoeum</i> (<i>Camptopoeum</i>) <i>rufiventre</i> Morawitz, 1880	
20.	<i>Camptopoeum</i> (<i>Camptopoeum</i>) <i>frontale</i> (Fabricius, 1804)	
21.	<i>Plesiopanurguscinerarius</i> Cameron 1907	
FAMILY APIDAE		
22.	<i>Amegillaalbigena</i> (Lepelletier, 1841)	
23.	<i>Amegilla candida</i> (Smith, 1879)	
24.	<i>Amegillamucoea</i> (Klug, 1845)	
25.	<i>Amegillavelocissima</i> Fedtschenko, 1875	
26.	<i>Ammobatessolitaris</i> Nurse, 1904	
27.	<i>Anthophoraatricilla</i> Eversmann, 1846	
28.	<i>Anthophoraatroalba</i> Lepelletier, 1841	
29.	<i>Anthophorafulvitaris</i> Brullé, 1832	
30.	<i>Anthophoraorientalis</i> Morawitz, 1877	
31.	<i>Anthophorasergia</i> Nurse, 1904	
32.	<i>Anthophorasichelii</i> Radoszkowski, 1869	
33.	<i>Apiscerana</i> Fabricius, 1793	New record for Quetta
34.	<i>Ceratinabinghami</i> Cockerell, 1908	New record for Boluchistan
35.	<i>Ceratinaegeria</i> Nurse, 1904	
36.	<i>Ceratinaino</i> Nurse, 1904	
37.	<i>Epeoluspictus</i> Nylander, 1848	

38. *Euceraalborufa*(Radoszkowski, 1871)
39. *Euceraaclypeata*Erichson, 1835
40. *Eucerapomona*Nurse, 1904
41. *Eucerasogdiana*Morawitz, 1875
42. *Euceraspectabilis*Morawitz, 1875
43. *Melectaluctuosa*(Scopoli, 1770)
44. *Nomadacoxalis*Morawitz, 1877
45. *Nomadadetecta*Nurse, 1904
46. *Nomadadistinguenda*Morawitz, 1874
47. *Nomadafurva*Panzer, 1798
48. *Nomadamutica*Morawitz, 1872
49. *Nomadaprisquilla*Nurse, 1902
50. *Nomadaruficollis*Morawitz 1875
51. *Pasitesmaculatus*Jurine, 1807
52. *Tetralonielladentata*(Germar, 1839)
53. *Thyreuselegans*(Morawitz, 1878)
54. *Thyreuspicarbon*Lieftinck, 1968
55. *Thyreusramosus*Lepelletier, 1841 New record for Boluchistan
56. *Xylocopaaestuans*Gribodo, 1884 New record for Quetta
57. *Xylocopafenestrata*Fabricius, 1798 New record for Quetta
58. *Xylocoparufa*Friese, 1901

FAMILY COLLETIDAE

59. *Colletesannulicornis*Morawitz, 1876
60. *Colletesidoneus*Cockerell, 1922
61. *Colleteslacunatus*Dours, 1872
62. *Halictuslucidipennis* (Smith, 1853)New record for Boluchistan

63. *Halictusvishnu*Cameron, 1897 New record for Boluchistan

FAMILY HALICTIDAE

64. *Lasioglossumclarum*Nurse, 1902
65. *Lasioglossummassuriense*(Bluthgen, 1926)
66. *Lasioglossumtadschicum*(Bluthgen, 1929)
67. *Nomioides (Nomioides) ino* (Nurse 1904)
68. *Nomioides (Nomioides) tricinctus* Pesenko&Pauly 2009
69. *Nomioides (Nomioides) turanicus*Morawitz 1876
70. *Systrophaplanidens*(Giraud, 1861)

FAMILY MEGACHELIDAE

71. *Anthidiumanguliventre*Morawitz, 1888
72. *Anthidiumflorentinum*(Fabricius, 1775)
73. *Anthidiumsaltator*Nurse, 1904
74. *Hoplitisquettensis*Tkalcu, 2000

[=*Osmiaquettanesis*Cameron, 1904]

75. *Hoplitisrubricrus*(Friese, 1899)
 76. *Hoplitissaundersi*(Vachal, 1891)
 77. *Icterantheidiumfedtschenkoi*(Morawitz, 1875)
 78. *Icterantheidiumlimbiferum* (Morawitz, 1875)
 79. *Icertantheidium*sp
 80. *Megachileapennina*Benoist, 1940
 81. *Megachileapicalis*Spinola, 1808
 82. *Megachiledesertorum*Morawitz, 1875
 83. *Megachilerotundata*(Fabricius, 1787)
 84. *Megachilerubripes*Morawitz, 1875
 85. *Megachile*sp.
 86. *Osmiaadae*Bingham, 1897
 87. *Osmiafedtschenkoi*Morawitz, 1875
 88. *Osmiaheteracantha*, Perez, 1896
 89. *Osmia laevifrons*Morawitz 1872
- [=*Hoplitislaevifrons*Morawitz, 1895]

90. *Osmiasponsa*Nurse, 1904

91. *Osmialatipes*Morawitz, 1875

[= *Haetosmiabrachyura* (Morawitz, 1875)]

92. *Pseudoanthidiumorientale*(Bing. 1897) New genus for Baluchistan with new sp. for record for Pakistan