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A review of the hover flies (Syrphidae: Diptera) from India

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Abstract

Different types of ecosystem in India attracts 357 species of Syrphidae or hover flies or flower flies belonging to 14 tribes under three subfamilies of the family Syrphidae (Order: Diptera). Among the 14 tribes, Syrphini shares maximum species (31%). West Bengal represents maximum number of species (33.33%), followed by Uttarakhand (26.33%), Himachal Pradesh (22.41%) and so on. Tripura represents least number of species (0.28%).

Keywords: Hover flies, Syrphidae, Diptera, India

1. Introduction

Flies that visit or hover on flowers are not all referable to flower flies or hover flies, but those that do it usually by hovering for some time with a shrill hum are regarded flower flies or hover flies or Syrphidae (Datta and Mukherjee, 2004) [20].

The family includes small to rather large (3-18 mm), bristle less, brightly coloured flies, may be striped, banded or spotted yellow on a blue, black or metallic ground colour. Head variable, usually as broad as or a little broader than the thorax, thorax rather large and robust, moderately arched, rarely with bristles, abdomen variable in shape, composed of five or six visible segments, rarely four, wings comparatively large, most of which have a false or spurious vein, extending longitudinally and slightly diagonally between the third (R_{4+5}) and (M_{1+2}) longitudinal veins.

The systematic study of the family Syrphidae has gradually progressed from the 17th century and presently 6,107 species under 209 genera reported from the world (Pape and Evenhuis, 2013 [91], Miranda *et al.* 2013 [70]). In India, 357 species under 14 tribes of three subfamilies are reported (Ghorpade, 2014c) [40].

2. Historical Review

The first species of syrphid was scientifically described by Linnaeus in 1758 from Europe and probably the *Serrato Paragus serratus* (Old name *Paragus (Pargus) serratus*) and *Ischiodon scutellaris* were the first species reported from India. Both the species were reported by Fabricius in 1805 [24] from Tranquebar, India. Apart from the voluminous work of Brunetti (1923) [12] on Syrphidae of India, there were several workers like, Fabricius (1805) [24]; Wiedemann (1824) [102]; Macquart (1846) [6]; Walker (1849, 1852) [100, 101]; Schiner (1868) [93]; Kertész (1901) [65]; de Meijere (1908) [22]; Brunetti (1907, 1908, 1913, 1915, 1917, 1925) [5, 7, 8, 9, 10, 11, 13]; Herve-Bazin (1914, 1923-24) [42, 43, 44, 45]; Shannon (1926) [96]; Sack (1928) [92]; Curran (1929) [15]; Greene (1949) [41]; Coe (1964) [14], Hull (1941, 1942, 1944, 1950) [47, 48]; Delfinado & Hardy, 1975) [21]; Hippa (1974) [46]; Lambeck & van Brink (1973) [67]; Nielson (2004) [90]; Senior-white (1922) [94] enriched the syrphid fauna of India.

Among the Indian workers, the notable contributions in Indian fauna are (Bhatia 1931) [2]; Bhatia and Shaffi (1933) [3]; Biswas *et al.* (1975) [4]; Deoras (1943) [23]; Joseph (1967, 1968, 1970) [54, 55, 56]; Joseph & Parui (1972a & b, 1973, 1976, 1977a&b, 1986) [57, 58, 59, 60, 61, 62, 63]; Joseph & Sharma (1976) [64]; Kohli *et al.* (1988) [66] Nayar (1968); Anand (1986) [1]; Singh, *et al.*, (1985, 1986a, 1986b) [97, 98, 99]; Datta & Chakraborti (1984, 1985, 1986b) [16, 17, 19]; Ghorpade (1973a, 1973b, 1981a & b, 1982, 1994, 1997, 1998, 2007, 2009, 2012, 2014a, 2014b) [25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36] Ghorpade *et al.* (2011) [38]; Ghorpade & Pathania (2014) [39]; Mitra (2004 a b & c, 2013) [73, 74, 75], Mitra & Parui (2002, 2010, 2012) [71, 76, 83]; Mitra & Mehta (2010) [80]; Mitra *et al.* (2003a & b, 2004a, b & c, 2005, 2008, 2009) [73, 74, 75, 78, 79]; Mukherjee, *et al.*

(2006a & b, 2007) [86]; Parui & Mitra (2000); Parui *et al.* (2002, 2006) [71, 54, 85], Patil *et al.* (2013); Sodhi & Singh (1991); Chander 1988); Mahalingam (1988); Shah, *et al.* (2014) [95].

3. Economic Importance

In the world, Syrphidae draw attention mainly because of their ecological services. These tiny flies, take a crucial role in pollination and serves as an important pollinator of many flowers (Larson, Kevan and Inouye (2001) [68]. Syrphid flies are frequent flower visitors to a wide range of wild plants as well as agricultural crops and are often considered the second most important group of pollinators after wild bees. However, there has been relatively little research on the flower flies pollination compared with bee species (Mitra *et al.*, 2002, 2003, 2004, 2005) [71, 76, 78].

The Syrphidae are also acts as biological control agents. Larvae of many Syrphidae prey upon pest insects which includes such leafhoppers, aphids and coccids. So, they are seen to control the pest level in such agricultural fields.

4. Biology

Larvae may saprophagous on dead wood (most Milesiini), coprophagous (Some Rhingiini and Milesiini), mycetophagous (some Rhingiini), phytophagous as borers in tubers, bulbs of living plants, miners in leaves (most Rhingiini, Merodontini, some Brachyopini); some live in ant nests (Microdontinae), specialized inquilines in social insect nests of termites, wasps, and bees (Some Volucellini and Merodontini) and some are predators (most Syrphinae and Pipizini of Eristalinae). Aphid feeding larvae are maggot like and usually greenish; some larvae living in polluted waters have the posterior end

extended as a long tail-like structure and are called rat-tailed maggots.

5. Discussion

Entomofaunal diversity of India is very rich and diversified due to the varied climatic conditions which includes northern mountains (the great Himalaya), Indo-gangetic plains, peninsular area, deserts, highlands, coasts and several islands. These various ecosystem in India attracts 357 species of Syrphidae belonging to 14 tribes under three subfamilies.

Among the subfamily Microdontinae, the tribe Microdontini (16 species) shares maximum number of species followed by Speginobacchini (2 species). Of the 8 tribes of the subfamily Eristalinae reported from India, Milesini (58 species) shares maximum number of species followed by Eristalini (50 species), Volucellini (20 species), Rhingini (19 species), Merodontini (18 species), Ceriodini (18 species), Brachyopini (12 species), and Callicerini (2 species). So far, only 3 tribes are reported under subfamily Syrphinae in India, of them, Syrphini (111 species) shares maximum number of species followed by Bacchini (19 species), Paragini (11 species) and Pipizini (1 species) (Fig. – 1). The list of this total 357 species with their state-wise distribution in India is on Supplementary material# (Table – 1).

Considering the percentage of species reported from India, the maximum number of species are reported under the tribe Syrphini (31%) followed by Milesini (16.2%), Eristalini (13.97%), Volucellini (5.59%), Rhingini (5.31%), Bacchini (5.31%), Ceriodini (5.03%), Merodontini (5.03%), Microdontini (4.47%), Brachyopini (3.35%), Paragini (3.07%), Speginobacchini (0.56%), Callicerini (0.56%), Pipizini (0.28%). (Fig. – 1)

Supplementary Material

Table 1: List of Syrphidae from India and their distribution in India

Sl. No.	Species	Distribution
SUBFAMILY- MICRODONTINAE TRIBE- MICRODONTINI		
1.	<i>Archimicrodon caeruleus</i> (Brunetti,1908)	Arunachal Pradesh
2.	<i>Chymophila stilboides</i> (Walker,1849)	West Bengal
3.	<i>Indascia brachystoma</i> (Wiedemann, 1824)	India?
4.	<i>Metadon annandalei</i> (Brunetti,1907b)	Assam, Himachal Pradesh, Meghalaya
5.	<i>Metadon auricinctus</i> (Brunetti,1908)	West Bengal
6.	<i>Metadon flavipes</i> (Brunetti,1908)	Meghalaya
7.	<i>Metadon ruficaudus</i> (Brunetti,1907b)	West Bengal
8.	<i>Metadon squamipennis</i> (Brunetti,1923)	Meghalaya
9.	<i>Microdon metallicus</i> de Meijere,1904	West Bengal
10.	<i>Microdon unicolor</i> Brunetti, 1915	Orissa
11.	<i>Microdon apidiformis</i> Brunetti,1924	Meghalaya
12.	<i>Microdon bellus</i> Brunetti,1923	Uttarakhand
13.	<i>Microdon carbonarius</i> Brunetti, 1923	Meghalaya
14.	<i>Paramixogaster brunetti</i> Reemer, 2013	Assam
15.	<i>Paramixogaster contractus</i> (Brunetti,1923)	Gujarat
16.	<i>Paramixogaster conveniens</i> (Brunetti,1923)	Assam
TRIBE- SPEGINOBACCHINI		
17.	<i>Speginobaccha chilcotti</i> Thompson, 1974	Uttarakhand
18.	<i>Speginobaccha macropoda</i> (Bigot, 1884)	Arunachal Pradesh?, Uttarakhand, Uttar Pradesh ?,West Bengal
SUBFAMILY –ERISTALINAE TRIBE- BRACHYOPINI		
19.	<i>Asiosphegina bispinosa</i> (Brunetti, 1915)	Arunachal Pradesh, Uttarakhand, West Bengal
20.	<i>Asiosphegina javana</i> (de Merjere, 1914)	West Bengal
21.	<i>Asiosphegina tristitata</i> (Brunetti, 1913)	Arunachal Pradesh
22.	<i>Myolepta himalayana</i> Brunetti, 1915	Himachal Pradesh
23.	<i>Orthonевра kozlovi</i> (Stackelberg, 1952)	Jammu Kashmir
24.	<i>Ortho Evra nobilis</i> (Fallén, 1817)	Jammu Kashmir

25.	<i>Orthonevra aenethorax</i> Kohli, Kapoor & Gupta, 1988	Himachal Pradesh, Jammu Kashmir
26.	<i>Orthonevra indica</i> (Brunetti, 1915)	Andaman and Nicobar Islands, Himachal Pradesh
27.	<i>Sphegina asciiformis</i> Brunetti, 1915	West Bengal
28.	<i>Sphegina guptai</i> Mutin, 1998	Himachal Pradesh
29.	<i>Sphegina kumaoniensis</i> Mutin, 1998	Uttarakhand
30.	<i>Sphegina tricoloripes</i> Brunetti, 1915	Himachal Pradesh, Uttarakhand
TRIBE-CALLICERINI		
31.	<i>Callicera christiani</i> Ghorpadé, 1982	Himachal Pradesh
32.	<i>Callicera robusta</i> Coe, 1964	Uttarakhand
TRIBE- CERIODINI		
33.	<i>Ceriana brevis</i> (Brunetti, 1923)	Bihar, Jammu Kashmir
34.	<i>Ceriana compacta</i> (Brunetti, 1907b)	Uttarakhand
35.	<i>Ceriana dimidiatipennis</i> (Brunetti, 1923)	Jammu Kashmir
36.	<i>Ceriana ornatifrons</i> (Brunetti, 1915)	West Bengal
37.	<i>Monoceromyia eumenioides</i> (Saunders, 1842)	Bihar, Maharashtra, Orissa, West Bengal
38.	<i>Monoceromyia fenestrata</i> (Brunetti, 1923)	Sikkim
39.	<i>Monoceromyia flavipennis</i> (deMeijere, 1908)	India?
40.	<i>Monoceromyia himalayensis</i> (deMeijere, 1908)	Sikkim
41.	<i>Monoceromyia multipunctata</i> (Hull, 1941)	Himachal Pradesh
42.	<i>Monoceromyia javana</i> (Wiedemann, 1824)	Arunachal Pradesh, Karnataka ?, West Bengal
43.	<i>Monoceromyia obscura</i> (Brunetti, 1907b)	Sikkim
44.	<i>Monocromia patricia</i> (Brunetti, 1923)	India?
45.	<i>Monoceromyia polistoides</i> (Brunetti, 1923)	Himachal Pradesh
46.	<i>Monoceromyia tredecimpunctata</i> (Brunetti, 1923)	Meghalaya
47.	<i>Monoceromyia trinotata</i> (deMeijere, 1904)	West Bengal
48.	<i>Sphiximorpha fruhstorferi</i> (deMeijere, 1908)	Sikkim
49.	<i>Sphiximorpha fulvescens</i> (Brunetti, 1915)	Uttarakhand
50.	<i>Sphiximorpha traingulifera</i> (Brunetti, 1913b)	West Bengal
TRIBE- ERISTALINI		
51.	<i>Dolichomerus crassa</i> (Fabricius, 1787)	Andhra Pradesh, Assam, Goa, Jharkhand, Kerala, Karnataka, Meghalaya, Maharashtra, Madhya Pradesh, Sikkim, Tamil Nadu, Uttarakhand, West Bengal
52.	<i>Eoseristalis albibasis</i> (Bigot, 1880)	Himachal Pradesh
53.	<i>Eoseristalis angustimarginalis</i> (Brunetti, 1923)	Meghalaya
54.	<i>Eoseristalis arbustorum</i> (Linnaeus, 1758)	Himachal Pradesh? Jammu Kashmir, Uttarakhand?
55.	<i>Eoseristalis brevifacies</i> (Coe, 1964)	Arunachal Pradesh, Assam, Jammu Kashmir, Uttarakhand
56.	<i>Eoseristalis cerealis</i> (Fabricius, 1805)	Arunachal Pradesh, Chandigarh, Himachal Pradesh, Jammu Kashmir, Meghalaya, Sikkim, Uttarakhand, Uttar Pradesh, West Bengal
57.	<i>Eoseristalis himalayensis</i> (Brunetti, 1908)	Arunachal Pradesh?, Himachal Pradesh, Jammu Kashmir, Sikkim, Uttarakhand
58.	<i>Eoseristalis horticola</i> (DeGeer, 1776)	India
59.	<i>Eoseristalis intricarioides</i> (Brunetti, 1923)	Sikkim
60.	<i>Eoseristalis simulata</i> (Brunetti, 1923)	Tamil Nadu
61.	<i>Eoseristalis suturalis</i> (Brunetti, 1923)	Meghalaya
62.	<i>Eristalinus sepulchralis</i> (Linnaeus, 1758)	Arunachal Pradesh, Jammu Kashmir
63.	<i>Eristalis tenax</i> (Linnaeus, 1758)	Arunachal Pradesh, Chandigarh, Himachal Pradesh, Jammu Kashmir, Uttarakhand, Meghalaya?, Punjab
64.	<i>Eristalodes paria</i> (Bigot, 1880)	Chandigarh, Himachal Pradesh, Karnataka, Meghalaya?, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal
65.	<i>Eristalodes latus</i> (Macquart, 1842)	India?
66.	<i>Kertesziomyia cyanea</i> (Brunetti, 1913)	West Bengal
67.	<i>Lathyrophthalmus aeneus</i> (Scopoli, 1763)	Andaman & Nicobar island, Chandigarh, Delhi, Gujarat, Himachal Pradesh?, Maharashtra ?, Punjab, Uttar Pradesh, Uttarakhand
68.	<i>Lathyrophthalmus arvorum</i> (Fabricius, 1787)	India.
69.	<i>Lathyrophthalmus aurulans</i> (Wiedemann, 1824)?	Kerala
70.	<i>Lathyrophthalmus connectens</i> Hervé-Bazin, 1923?	Tamil Nadu
71.	<i>Lathyrophthalmus laetus</i> (Wiedemann, 1830)	Arunachal Pradesh, Chandigarh, Delhi, Meghalaya?, Punjab, Rajasthan, West Bengal
72.	<i>Lathyrophthalmus megacephalus</i> (Rossi, 1794)	Delhi, Punjab, West Bengal

73.	<i>Lathyrrophthalmus obliquus</i> (Wiedemann, 1824)	Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra, West Bengal
74.	<i>Lathyrrophthalmus obscuritarsis</i> (deMeijere, 1908)	Andhra Pradesh, Chandigarh, Gujarat, Jammu Kashmir, Kerala, Karnataka, Maharashtra, Punjab, Tamil Nadu, West Bengal
75.	<i>Lathyrrophthalmus polychromatus</i> (Brunetti, 1923)	Bihar, Kerala, West Bengal
76.	<i>Lathyrrophthalmus quadristriatus</i> (Macquart, 1846)	India
77.	<i>Lathyrrophthalmus quinquestriatus</i> (Fabricius, 1794)	Assam, Bihar, Karnataka, Orissa, Meghalaya?, Madhya Pradesh, West Bengal, Uttarakhand
78.	<i>Lathyrrophthalmus tabanoides</i> (Jaennicke, 1867)	Delhi
79.	<i>Lathyrrophthalmus tarsalis</i> (Macquart, 1855)	India
80.	<i>Mallota curvigaster</i> (Macquart, 1842)	Bihar, Rajasthan, West Bengal
81.	<i>Mallota rufipes</i> Brunetti, 1913	West Bengal
82.	<i>Mallota varicolor</i> (Walker, 1856)	Meghalaya, West Bengal
83.	<i>Mallota vilis</i> (Wiedemann, 1830)	India
84.	<i>Merodonoides multifarioris</i> (Walker, 1852)	Gujarat, Haryana, Karnataka, Meghalaya, Madhya Pradesh, Rajasthan, Tamil Nadu
85.	<i>Mesembrius bengalensis</i> (Wiedemann, 1819)	Andhra Pradesh, Assam, Bihar, Chandigarh, Gujarat, Karnataka, Punjab, Tamil Nadu, West Bengal
86.	<i>Mesembrius quadrivittatus</i> (Wiedemann, 1819)	Andhra Pradesh, Bihar, Chandigarh, Gujarat, Karnataka, Madhya Pradesh, Orissa, Tamil Nadu, West Bengal
87.	<i>Mesembrius sharpi</i> Kohli, Kapoor & Gupta, 1988	Uttarakhand
88.	<i>Mesembrius tuberculatus</i> (Brunetti, 1907b)	West Bengal
89.	<i>Mesembrius vestitus</i> (Wiedemann, 1821)	Assam, West Bengal
90.	<i>Pararctophila oberthueri</i> Hervé-Bazin, 1914	Jammu Kashmir, Uttarakhand, West Bengal
91.	<i>Phytomia aesymnus</i> (Walker, 1849)	India?
92.	<i>Phytomia argyrocephala</i> (Macquart, 1842)	Andhra Pradesh, Bihar, Gujarat, Jharkhand, Kerala, Karnataka, Madhya Pradesh, Tamil Nadu, West Bengal
93.	<i>Phytomia chrysopyga</i> (Wiedemann, 1819)	Assam, Meghalaya, Sikkim
94.	<i>Phytomia errans</i> (Fabricius, 1787)	Andhra Pradesh, Arunachal Pradesh, Bihar, Kerala, Karnataka, Meghalaya, Tamil Nadu, West Bengal
95.	<i>Phytomia zonata</i> (Fabricius, 1787)	Arunachal Pradesh, Assam, Kerala, Meghalaya, Sikkim, Tamil Nadu, West Bengal
96.	<i>Pseuderistalis fascipennis</i> Thompson, 1975	Andaman & Nicobar islands?, Arunachal Pradesh, Assam
97.	<i>Pseuderistalis nigra</i> (Wiedemann, 1828)	West Bengal
98.	<i>Pseudovolucella eristaloides</i> (Brunetti, 1913)	Arunachal Pradesh
99.	<i>Pseudovolucella himalayensis</i> Brunetti, 1907b	Sikkim
100.	<i>Pseudovolucella hingstoni</i> Coe, 1964	Sikkim
TRIBE- MERODONTINI		
101.	<i>Azpeytia bifascia</i> Brunetti, 1907b	Arunachal Pradesh, West Bengal
102.	<i>Eumerus aeneithorax</i> Brunetti, 1915	Chandigarh? Himachal Pradesh, Punjab?
103.	<i>Eumerus albifrons</i> Walker, 1852	Himachal Pradesh, Jammu Kashmir, Orissa
104.	<i>Eumerus ammophilus</i> Paramonov, 1927	Jammu Kashmir
105.	<i>Eumerus argentipes</i> Walker, 1861	Assam
106.	<i>Eumerus aurifrons</i> (Wiedemann, 1824)	Bihar, Chandigarh, Jammu Kashmir, Karnataka, Maharashtra, Punjab, Tamil Nadu, West Bengal
107.	<i>Eumerus halictoides</i> Brunetti, 1915	Himachal Pradesh, WB
108.	<i>Eumerus kashmerensis</i> Kohli, Kapoor & Gupta, 1988	Jammu Kashmir
109.	<i>Eumerus nepalensis</i> Brunetti, 1908	Chandigarh?, Himachal Pradesh, Jammu Kashmir
110.	<i>Eumerus nicobarensis</i> Schiner, 1868	Andaman and Nicobar Islands, Assam, Bihar, Jammu Kashmir, West Bengal
111.	<i>Eumerus perpensus</i> Brunetti, 1917	Himachal Pradesh
112.	<i>Eumerus perplexus</i> Brunetti, 1917	Himachal Pradesh
113.	<i>Eumerus pulcherrimus</i> Brunetti, 1915	West Bengal
114.	<i>Eumerus pulverulentus</i> Brunetti, 1923	Bihar, Jammu Kashmir, Rajasthan
115.	<i>Eumerus quadrinotatus</i> van Doesburg, 1955	Jammu Kashmir
116.	<i>Eumerus rufoscutellatus</i> Brunetti, 1913	Chandigarh?, Punjab?, West Bengal
117.	<i>Eumerus sexvittatus</i> Brunetti, 1915	Uttarakhand
118.	<i>Merodonalbifasciatus</i> Macquart, 1842	India?
TRIBE- MILESIINI		
119.	<i>Blera himalaya</i> Thompson, 2000	Himachal Pradesh

120.	<i>Brachypalpoides cupreiventris</i> (Brunetti, 1923)	West Bengal
121.	<i>Brachypalpoides discolor</i> Hippa, 1985	Assam
122.	<i>Brachypalpoides dives</i> (Brunetti, 1908)	Nagaland
123.	<i>Brachypalpoides makiana</i> (Shiraki, 1930)	Assam
124.	<i>Brachypalpoides plumipes</i> Hippa, 1985	Arunachal Pradesh
125.	<i>Calcaretropidia triangulifera</i> (Keiser, 1958)	South India
126.	<i>Cheiroxylota dimidiata</i> (Brunetti, 1923)	Uttarakhand
127.	<i>Criorhina bicolorata</i> Hull, 1950	Jammu Kashmir
128.	<i>Criorhinabomboides</i> Hull, 1944	Meghalaya, Sikkim
129.	<i>Criorhina crioarctos</i> Hull, 1944	Arunachal Pradesh
130.	<i>Criorhina excavate</i> Curran, 1929	Uttarakhand
131.	<i>Criorhina imitator</i> Brunetti, 1915	Jammu Kashmir, Uttarakhand
132.	<i>Criorhina pallidipes</i> Curran, 1929	Uttarakhand
133.	<i>Criorhina pallipilosa</i> Hull, 1944	Jammu Kashmir
134.	<i>Criorhina rubropilosa</i> Hull, 1950	Jammu Kashmir
135.	<i>Criorhina simioides</i> (Brunetti, 1908)	India?
136.	<i>Criorhina spinitarsis</i> Curran, 1929	Uttarakhand
137.	<i>Criorhina tripilosa</i> Coe, 1964	Uttarakhand
138.	<i>Criorhina vivida</i> Brunetti, 1923	Jammu Kashmir
139.	<i>Korinchia fasciata</i> (Macquart, 1834)	India?
140.	<i>Korinchia rufa</i> Hervé-Bazin, 1922	Tamil Nadu
141.	<i>Lycastris albipes</i> Walker, 1857	Himachal Pradesh, Uttarakhand, West Bengal
142.	<i>Lycastris austeni</i> Brunetti, 1923	West Bengal
143.	<i>Lycastris flavohirta</i> Brunetti, 1907	Himachal Pradesh, West Bengal
144.	<i>Lycastris griseipennis</i> Coe, 1964	Arunachal Pradesh
145.	<i>Matsumyia dentata</i> (Brunetti, 1908)	Himachal Pradesh
146.	<i>Milesia balteata</i> Kertész, 1901	Assam, Meghalaya, Sikkim, West Bengal
147.	<i>Milesia brunneonigra</i> Hippa, 1990	West Bengal
148.	<i>Milesia caesarea</i> Hippa, 1990	Kerala, Karnataka, Madhya Pradesh?, Tamil Nadu
149.	<i>Milesia cinnamomea</i> Hippa, 1990	Kerala, Karnataka, Tamil Nadu
150.	<i>Milesia cretosa</i> Hippa, 1990	Meghalaya
151.	<i>Milesia ferruginosa</i> Brunetti, 1913	Meghalaya, Sikkim, Uttarakhand, West Bengal
152.	<i>Milesia gigantean</i> Hippa, 1990	Meghalaya
153.	<i>Milesia illustris</i> Hippa, 1990	Assam, Meghalaya, Sikkim, West Bengal
154.	<i>Milesiamacularis</i> Wiedemann, 1824?	Sikkim? West Bengal?
155.	<i>Milesia mima</i> Hippa, 1990	Kerala, Tamil Nadu
156.	<i>Milesia querini</i> Ghorpadé, 2014	Andhra Pradesh? Or Pondicherry? or Tamil Nadu
157.	<i>Milesia semifulva</i> de Meijere, 1904	Meghalaya, West Bengal
158.	<i>Milesia sexmaculata</i> Brunetti, 1915	Kerala, Tamil Nadu, West Bengal
159.	<i>Milesia variegata</i> Brunetti, 1908	Meghalaya, Sikkim, West Bengal
160.	<i>Milesia verticalis</i> Brunetti, 1923	Meghalaya
161.	<i>Syrirta fasciata</i> (Wiedemann, 1830)	Gujarat, Uttarakhand
162.	<i>Syrirta indica</i> (Wiedemann, 1824)	Andhra Pradesh?, Assam, Bihar?, Kerala, Karnataka ?, Maharashtra ?, Madhya Pradesh ?, Pondicherry, Tamil Nadu, Uttar Pradesh?, West Bengal?
163.	<i>Syrirta orientalis</i> Macquart, 1842	Chandigarh, Delhi, Punjab, Pondicherry, Tamil Nadu, Uttarakhand, West Bengal
164.	<i>Syrirta pipiens</i> (Linnaeus, 1758)	Chandigarh?, Himachal Pradesh, Jammu Kashmir, Punjab, Uttarakhand
165.	<i>Syrirta proximate</i> Lyneborg & Barkemeyer, 2005	Andhra Pradesh, Delhi? Kerala, Karnataka, Madhya Pradesh, Pondicherry, Rajasthan?, Tamil Nadu, West Bengal ?
166.	<i>Syrirta stylata</i> Lyneborg & Barkemeyer, 2005	Kerala, Karnataka, Madhya Pradesh, Tamil Nadu
167.	<i>Syrirtoxylota annulata</i> (Brunetti, 1913)	West Bengal
168.	<i>Temnostoma nigrimanus</i> Brunetti, 1915	Uttarakhand
169.	<i>Xylota auronitens</i> Brunetti, 1908	Arunachal Pradesh
170.	<i>Xylota bistriata</i> Brunetti, 1915	Kerala
171.	<i>Xylota carbonaria</i> Brunetti, 1923	Tamil Nadu
172.	<i>Xylota cuprina</i> Bigot, 1885	Arunachal Pradesh
173.	<i>Xylota nursei</i> Brunetti, 1923	Himachal Pradesh, West Bengal
174.	<i>Xylota penicillata</i> Brunetti, 1923	Meghalaya
175.	<i>Xylota assamensis</i> Brunetti, 1908	Nagaland
176.	<i>Xylotina ornata</i> (Brunetti, 1915)	Uttarakhand
TRIBE- RHINGIINI		
177.	<i>Cheilosiaapicalis</i> Brunetti, 1913	Arunachal Pradesh

178.	<i>Cheilosia corydon</i> (Harris, 1780)	Uttarakhand
179.	<i>Cheilosia himalayensis</i> (Brunetti, 1915)	Uttarakhand
180.	<i>Cheilosia hirticincta</i> Brunetti, 1915	West Bengal
181.	<i>Cheilosia kalatopensis</i> Nayar, 1968	Himachal Pradesh
182.	<i>Cheilosia nigroaenea</i> Brunetti, 1915	Himachal Pradesh, Sikkim?
183.	<i>Cheilosia pilipes</i> (Bigot, 1884)	India
184.	<i>Cheilosia plumbiventris</i> Brunetti, 1915	Himachal Pradesh
185.	<i>Cheilosia songarea</i> (Becker, 1894)	'Karakoram Range, Kashmir'; Jammu Kashmir
186.	<i>Endoiasimyia Indiana</i> Bigot, 1882	India
187.	<i>Ferdinanda isabella</i> Hull, 1942	Jammu Kashmir
188.	<i>Ferdinanda longifacies</i> Coe, 1964	Arunachal Pradesh Uttarakhand
189.	<i>Ferdinanda montana</i> Hull, 1942	Jammu Kashmir
190.	<i>Rhingia angusticincta</i> Brunetti, 1908	Himachal Pradesh, West Bengal?
191.	<i>Rhingia binotata</i> Brunetti, 1908	Arunachal Pradesh, West Bengal
192.	<i>Rhingia cinctade</i> Meijere, 1904	Meghalaya, West Bengal
193.	<i>Rhingia fasciata</i> Brunetti, 1908	Himachal Pradesh, Punjab?, West Bengal
194.	<i>Rhingia sexmaculata</i> Brunetti, 1913	Assam
195.	<i>Rhingia siwalikensis</i> Nayar, 1968	Himachal Pradesh
TRIBE- VOLUCCELLINI		
196.	<i>Graptomyza angustimarginata</i> Brunetti, 1923	Meghalaya
197.	<i>Graptomyza brevisrostris</i> Wiedemann, 1820	Andaman and Nicobar islands, Arunachal Pradesh, Chandigarh, Jammu Kashmir, Punjab, Tamil nadu
198.	<i>Graptomyza duodecimnotata</i> Brunetti, 1908	Assam
199.	<i>Graptomyza flavonotata</i> Brunetti, 1917	Himachal Pradesh
200.	<i>Graptomyza hardyi</i> Greene, 1949	Assam
201.	<i>Graptomyza nigripes</i> Brunetti, 1913	Assam, Himachal Pradesh, Meghalaya, Sikkim, West Bengal
202.	<i>Graptomyza sexnotata</i> Brunetti, 1908	Meghalaya, Sikkim
203.	<i>Graptomyza tinctovittata</i> Brunetti, 1915	West Bengal
204.	<i>Graptomyza ventralis</i> Wiedemann, 1830	Arunachal Pradesh, Meghalaya?
205.	<i>Volucella basalis</i> Brunetti, 1907	Sikkim, West Bengal
206.	<i>Volucella discolor</i> Brunetti, 1908	Assam
207.	<i>Volucella flavoscutella</i> Sack, 1928	Jammu Kashmir?, Uttarakhand
208.	<i>Volucella lividiventris</i> Brunetti, 1908	Sikkim
209.	<i>Volucella peleterii</i> Macquart, 1834	Jammu Kashmir?
210.	<i>Volucella pellucens</i> (Linnaeus, 1758)	Jammu Kashmir, Uttarakhand
211.	<i>Volucella ruficauda</i> Brunetti, 1907b	Jammu Kashmir, Sikkim
212.	<i>Volucella signata</i> Brunetti, 1923	Meghalaya
213.	<i>Volucella trifasciata</i> Wiedemann, 1830	Meghalaya, Sikkim
214.	<i>Volucella ursinade</i> Meijere, 1904	West Bengal
215.	<i>Volucella varipila</i> Coe, 1964	Jammu Kashmir
SUBFAMILY- SYRPHINAE TRIBE- BACCHINI		
216.	<i>Baccha maculate</i> Walker, 1852	Arunachal Pradesh? Himachal Pradesh, Meghalaya, Uttarakhand, West Bengal?
217.	<i>Bacha plumbicincta</i> Brunetti, 1915	Meghalaya
218.	<i>Melanostoma dubium</i> (Zetterstedt, 1837)	Himachal Pradesh?
219.	<i>Melanostoma mellinum</i> (Linnaeus, 1758)	Himachal Pradesh?
220.	<i>Melanostoma orientale</i> (Wiedemann, 1824)	Arunachal Pradesh, Assam?, Chandigarh, Himachal Pradesh, Jammu Kashmir, Meghalaya ?, Punjab, Sikkim, Uttarakhand, West Bengal
221.	<i>Melanostoma pedium</i> (Walker, 1852)	Himachal Pradesh, Karnataka, Uttarakhand, West Bengal
222.	<i>Melanostoma scalare</i> (Fabricius, 1794)	India?
223.	<i>Melanostoma univittatum</i> (Wiedemann, 1824)	Andhra Pradesh? Arunachal Pradesh?, Assam, Bihar, Himachal Pradesh, Kerala, Karnataka, Meghalaya, Uttarakhand, Tamil Nadu, West Bengal?
224.	<i>Platycheirus albimanus</i> (Fabricius, 1781)	Himachal Pradesh, Jammu Kashmir, Meghalaya?, West Bengal
225.	<i>Platycheirus Ambiguus</i> (Fallén, 1817)	Himachal Pradesh, Jammu Kashmir
226.	<i>Platycheirus angustatus</i> (Zetterstedt, 1843)	Jammu Kashmir
227.	<i>Platycheirus cryophilus</i> Nielsen, 2007	Jammu Kashmir
228.	<i>Platycheirus himalayensis</i> (Brunetti, 1915)	Sikkim, Uttarakhand
229.	<i>Platycheirus kashmiricus</i> Nielsen, 2004	Jammu Kashmir
230.	<i>Pseudoplatycheirus peteri</i> van Doesburg, 1955	Jammu Kashmir
231.	<i>Rohdendorfia dimorpha</i> Smirnov, 1924	Jammu Kashmir
232.	<i>Tuberculanostoma solitarium</i> van Doesburg, 1955	Jammu Kashmir

233.	<i>Xanthandrus garhwalensis</i> (Kohli, Kapoor & Gupta, 1988)	Uttarakhand
234.	<i>Xanthandrus indicus</i> Curran, 1933	Andhra Pradesh?, Madhya Pradesh
TRIBE- PARAGINI		
235.	<i>Pandasyopthalmus annandalei</i> Ghorpadé, 1992	Himachal Pradesh, Jammu Kashmir, Uttarakhand
236.	<i>Pandasyopthalmus atratus</i> (deMeijere, 1906)	Uttarakhand
237.	<i>Pandasyopthalmus politus</i> (Wiedemann, 1830)	Arunachal Pradesh?, Assam, Bihar?, Chandigarh?, Himachal Pradesh, Jammu Kashmir, Meghalaya, Punjab, Sikkim, Uttarakhand, West Bengal
238.	<i>Pandasyopthalmus rufocinctus</i> (Brunetti, 1908)	Arunachal Pradesh?, Assam?, Bihar?, Chandigarh, Himachal Pradesh, Jammu Kashmir, Kerala, Karnataka, Meghalaya, Punjab, Tamil Nadu, West Bengal
239.	<i>Pandasyopthalmus tibialis</i> (Fallén, 1817)	Himachal Pradesh
240.	<i>Paragus bicolor</i> (Fabricius, 1794)	Himachal Pradesh?, Jammu Kashmir
241.	<i>Paragus quadrifasciatus</i> Meigen, 1822	Jammu Kashmir
242.	<i>Paragus ambalaensis</i> Sodhi & AwtarSingh, 1991	Haryana
243.	<i>Serratoparagus crenulatus</i> (Thomson, 1869)	Andaman and Nicobar Islands, Arunachal Pradesh?, Assam, Bihar, Kerala, Karnataka, Sikkim ?, Tamil Nadu, Tripura, West Bengal
244.	<i>Serratoparagus serratus</i> (Fabricius, 1805)	Andhra Pradesh, Bihar, Chandigarh, Delhi, Gujarat, Jammu Kashmir, Karnataka, Maharashtra ?, Madhya Pradesh, Punjab, Pondicherry, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal
245.	<i>Serratoparagus yerburiensis</i> (Stuckenberg, 1954)	Andaman and Nicobar Islands, Andhra Pradesh, Assam?, Bihar, Delhi, Kerala, Karnataka, Madhya Pradesh, Orissa, Pondicherry, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal
TRIBE - PIPIZINI		
246.	<i>Heringia cyanea</i> (Brunetti, 1915)	Sikkim
TRIBE - SYRPHINI		
247.	<i>Agnisyrphus angara</i> Ghorpadé, 1994	Uttarakhand
248.	<i>Agnisyrphus brunetti</i> Ghorpadé, 2007	Arunachal Pradesh, West Bengal
249.	<i>Allobaccha amphithoe</i> (Walker, 1849)	Andaman & Nicobar island, Arunachal Pradesh, Assam, Kerala, Karnataka, Meghalaya, Mizoram, Sikkim, West Bengal
250.	<i>Allobaccha apicalis</i> (Loew, 1858)	Anaman & Nicobar island, Assam, Bihar, Gujarat, Goa, Himachal Pradesh, Kerala, Karnataka, Meghalaya, Mizoram, Tamil Nadu, Uttarakhand, West Bengal
251.	<i>Allobaccha binghami</i> Ghorpadé, 1994	Sikkim
252.	<i>Allobaccha dispar</i> (Walker, 1860)	Arunachal Pradesh
253.	<i>Allobaccha elegans</i> (Brunetti, 1915)	Karnataka, Sikkim, West Bengal
254.	<i>Allobaccha fallax</i> (Austen, 1893)	India?
255.	<i>Allobaccha nigricosta</i> (Brunetti, 1907b)	Delhi, Meghalaya, Uttarakhand
256.	<i>Allobaccha oldroydi</i> Ghorpadé, 1994	Kerala
257.	<i>Allobaccha sapphirina</i> (Wiedemann, 1830)	Delhi, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Rajasthan, Tamil Nadu
258.	<i>Allobaccha triangulifera</i> (Austen, 1893)	Karnataka, West Bengal
259.	<i>Allobaccha umbrosa</i> (Brunetti, 1923)	Chandigarh, Punjab, Rajasthan
260.	<i>Allograpta bouvieri</i> (Hervé-Bazin, 1923)	Kerala, Tamil Nadu
261.	<i>Allograpta dravida</i> Ghorpadé, 1994	Karnataka
262.	<i>Allograpta javana</i> (Wiedemann, 1824)	Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Delhi, Kerala, Karnataka, Meghalaya, Madhya Pradesh, Orissa, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal
263.	<i>Allograpta maculi pleura</i> (Brunetti, 1913)	Arunachal Pradesh, Assam
264.	<i>Asarkina assimilis</i> (Macquart, 1846)	Himachal Pradesh
265.	<i>Asarkina ayyari</i> Ghorpadé, 1994	Kerala, Karnataka, Tamil Nadu
266.	<i>Asarkina belli</i> Ghorpadé, 1994	Andhra Pradesh, Karnataka
267.	<i>Asarkina bhima</i> Ghorpadé, 1994	Uttarakhand, West Bengal
268.	<i>Asarkina consequens</i> (Walker, 1857)	India
269.	<i>Asarkina incisuralis</i> (Macquart, 1855)	Andhra Pradesh, Arunachal Pradesh?, Assam, Bihar, Chandigarh, Jammu Kashmir, Kerala, Karnataka, Maharashtra, Punjab, Pondicherry, Sikkim ?, Tamil Nadu Uttarakhand, Uttar Pradesh, West Bengal
270.	<i>Asarkina hema</i> Ghorpadé, 1994	Kerala, Karnataka
271.	<i>Asarkina pitambara</i> Ghorpadé, 1994	Karnataka
272.	<i>Asarkina porcina</i> (Coquillett, 1898)	Assam, Meghalaya, Sikkim, Uttarakhand, West Bengal
273.	<i>Asiobaccha nubilipennis</i> (Austen, 1893)	Kerala, Karnataka, Meghalaya, Tamil Nadu West Bengal
274.	<i>Betasyrphus aeneifrons</i> (Brunetti, 1913)	Arunachal Pradesh, Assam, Chandigarh, Meghalaya, Punjab, Sikkim, Uttarakhand, West Bengal
275.	<i>Betasyrphus bazini</i> (Brunetti, 1925)	Bihar, Meghalaya, Sikkim, Uttarakhand, West Bengal

276.	<i>Betasyrphus fletcheri</i> Ghorpadé, 1994	Kerala, Tamil Nadu
277.	<i>Betasyrphus isaaci</i> (Bhatia, 1933)	Arunachal Pradesh, Assam, Bihar, Chandigarh, Himachal Pradesh, Jammu Kashmir, Meghalaya,, Punjab, Uttarakhand, Uttar Pradesh, West Bengal
278.	<i>Betasyrphus linga</i> Ghorpadé, 1994	Kerala, Karnataka, Tamil Nadu
279.	<i>Chrysotoxum antiquum</i> Walker, 1852	Himachal Pradesh, Uttarakhand, West Bengal
280.	<i>Chrysotoxum arcuatum</i> (Linnaeus, 1758)	Bihar?
281.	<i>Chrysotoxum baphyrum</i> Walker, 1849	Arunachal Pradesh?, Chandigarh, Himachal Pradesh, Karnataka, Meghalaya, Maharashtra, Punjab, Tamil Nadu, Uttarakhand, West Bengal
282.	<i>Chrysotoxum convexum</i> Brunetti, 1915	Jammu Kashmir, Uttarakhand
283.	<i>Chrysotoxum corbetti</i> Ghorpadé, 1994	Uttarakhand
284.	<i>Chrysotoxum fasciolatum</i> (DeGeer, 1776)	Jammu Kashmir, Uttarakhand
285.	<i>Chrysotoxum intermedium</i> Meigen, 1822	Himachal Pradesh, Jammu Kashmir
286.	<i>Chrysotoxum quadrifasciatum</i> Brunetti, 1923	Meghalaya
287.	<i>Citrogramma amarilla</i> Mengual, 2012	Tamil Nadu, West Bengal?
288.	<i>Citrogramma citrinum</i> (Brunetti, 1923)	Arunachal Pradesh, Assam ?, Meghalaya, West Bengal
289.	<i>Citrogramma clarum</i> (Herve-Bazin, 1926)	Meghalaya,, West Bengal
290.	<i>Citrogramma currani</i> Ghorpadé in Mengual, 2012	Arunachal Pradesh
291.	<i>Citrogramma flavigenum</i> Wyatt, 1991	Arunachal Pradesh?, Kerala, Karnataka, Tamil Nadu
292.	<i>Citrogramma frederici</i> Mengual & Ghorpadé in Mengual, 2012	Karnataka
293.	<i>Citrogramma marissa</i> Mengual, 2012	Arunachal Pradesh
294.	<i>Dasysyrphus darada</i> Ghorpadé, 1994	Jammu Kashmir
295.	<i>Dasysyrphus orsua</i> (Walker, 1852)	Himachal Pradesh, Jammu Kashmir, Uttarakhand, West Bengal
296.	<i>Dasysyrphus pandu</i> Ghorpadé, 1994	Jammu Kashmir
297.	<i>Dasysyrphus rossi</i> Ghorpadé, 1994	Kerala, Tamil Nadu
298.	<i>Didea fasciata</i> Macquart, 1834	Assam
299.	<i>Didea poorva</i> Ghorpadé, 1994	Meghalaya,
300.	<i>Didea vockerothi</i> Ghorpadé, 1994	Jammu Kashmir
301.	<i>Dideoides kempi</i> Brunetti, 1923	Arunachal Pradesh, Meghalaya, Sikkim, West Bengal
302.	<i>Dideoides ovatus</i> Brunetti, 1908	Meghalaya, Sikkim, West Bengal
303.	<i>Dideoides tigerinus</i> (Bigot, 1885)	Meghalaya,
304.	<i>Dideoides trilineatus</i> Brunetti, 1923	Arunachal Pradesh
305.	<i>Dideoopsis aegrota</i> (Fabricius, 1805)	Andaman & Nicobar islands, Arunachal Pradesh, Assam, Kerala, Karnataka, Meghalaya, Maharashtra, Madhya Pradesh, Sikkim, Tamil Nadu, Uttarakhand, West Bengal
306.	<i>Epistrophe aequalis</i> (Walker, 1852)	Himachal Pradesh, Uttarakhand
307.	<i>Epistrophe carmichaeli</i> Ghorpadé, 1994	West Bengal
308.	<i>Epistrophe griseo cincta</i> (Brunetti, 1923)	Jammu Kashmir, Uttarakhand, West Bengal
309.	<i>Epistrophella quinquevittata</i> (Brunetti, 1923)	Meghalaya, West Bengal
310.	<i>Epistrophella shibakawae</i> (Matsumura, 1917)	India?
311.	<i>Episyrphus balteatus</i> (DeGeer, 1776)	Chandigarh, Himachal Pradesh, Jammu Kashmir, Punjab, Uttarakhand, Uttar Pradesh?
312.	<i>Episyrphus viridaureus</i> (Wiedemann, 1824)	Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Gujarat, Himachal Pradesh, Haryana, Kerala, Karnataka, Meghalaya,, Maharashtra, Madhya Pradesh, Punjab, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal
313.	<i>Eriozona analis</i> Kertész, 1901	Sikkim, Uttarakhand
314.	<i>Ischiodon scutellaris</i> (Fabricius, 1805)	Andhra Pradesh, Andaman & Nicobar islands, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Gujarat, Himachal Pradesh, Haryana, Jammu Kashmir, Kerala, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Punjab, Pondicherry, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal
315.	<i>Ischyrosyrphus sivae</i> Bigot, 1882	India?
316.	<i>Leucozonia brunetti</i> Ghorpadé, 1994	Uttarakhand
317.	<i>Leucozonia virendra</i> Ghorpadé, 1994	Uttarakhand
318.	<i>Macrosyrphus confrater</i> (Wiedemann, 1830)	Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Gujarat, Himachal Pradesh, Haryana?, Jammu Kashmir, Kerala ?, Karnataka, Meghalaya,, Maharashtra, Punjab, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal
319.	<i>Megasyrphus himalayensis</i> Kohli, Kapoor & Gupta, 1988	Himachal Pradesh, Jammu Kashmir
320.	<i>Melangyna remota</i> (Brunetti, 1923)	Himachal Pradesh, Jammu Kashmir, Uttarakhand
321.	<i>Meliscaeva ceylonica</i> (Keiser, 1958)	Tamil Nadu
322.	<i>Meliscaeva cinctelloides</i> Ghorpadé, 1994	Meghalaya, Sikkim?, West Bengal
323.	<i>Meliscaeva darjeelingensis</i> Datta	West Bengal

	&Chakraborti, 1986	
324.	<i>Meliscaeva kusuma</i> Ghorpadé, 1994	West Bengal
325.	<i>Meliscaeva lefroy</i> Ghorpadé, 1994	Himachal Pradesh, Jammu Kashmir, Uttarakhand
326.	<i>Meliscaeva magnifica</i> Ghorpadé, 1994	West Bengal
327.	<i>Meliscaeva mathisi</i> Ghorpadé, 1994	Kerala, Tamil Nadu
328.	<i>Meliscaeva tribeni</i> (Nayar, 1968)	Himachal Pradesh, Uttarakhand
329.	<i>Metasyrphus bucculatus</i> (Rondani, 1857)	Himachal Pradesh, Jammu Kashmir, Punjab, Sikkim?, Uttarakhand, West Bengal
330.	<i>Metasyrphus corollae</i> (Fabricius, 1794)	Arunachal Pradesh, Chandigarh, Himachal Pradesh, Jammu Kashmir, Meghalaya, Punjab, Sikkim, Uttarakhand, West Bengal
331.	<i>Metasyrphus latifasciatus</i> (Macquart, 1829)	Chandigarh?, Himachal Pradesh, Jammu Kashmir, Punjab
332.	<i>Metasyrphus luniger</i> (Meigen, 1822)	Himachal Pradesh, Punjab
333.	<i>Metasyrphus nuba</i> (Wiedemann, 1830)	Himachal Pradesh?, Jammu Kashmir
334.	<i>Parasyrphus aeneostoma</i> Matsumura, 1917	Jammu Kashmir?
335.	<i>Parasyrphus kashmiricus</i> Ghorpadé, 1994	Jammu Kashmir
336.	<i>Parasyrphus thompsoni</i> Ghorpadé, 1994	Himachal Pradesh, Jammu Kashmir, Uttarakhand
337.	<i>Rhinobaccha krishna</i> Ghorpadé, 1994	Kerala, Tamil Nadu
338.	<i>Rhinobaccha peterseni</i> Ghorpadé, 1994	Kerala, Karnataka, Tamil Nadu
339.	<i>Scaeva albomaculata</i> (Macquart, 1842)	Jammu Kashmir
340.	<i>Scaeva latimaculata</i> (Brunetti, 1923)	Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Punjab, Rajasthan, Uttarakhand, West Bengal
341.	<i>Scaeva lunata</i> (Wiedemann, 1830)	Arunachal Pradesh ?, Chandigarh?, Himachal Pradesh, Meghalaya?, Punjab, Uttarakhand
342.	<i>Scaeva pyrastris</i> (Linnaeus, 1758)	Jammu Kashmir, Punjab, Uttarakhand
343.	<i>Sphaerophoria assamensis</i> Joseph, 1970	Arunachal Pradesh, Meghalaya, Sikkim, West Bengal
344.	<i>Sphaerophoria bengalensis</i> Macquart, 1842	Bihar, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Maharashtra?, Punjab, Uttarakhand, Uttar Pradesh, West Bengal
345.	<i>Sphaerophoria indiana</i> Bigot, 1884	Arunachal Pradesh, Assam, Bihar?, Chandigarh, Delhi, Himachal Pradesh, Haryana, Jammu Kashmir, Meghalaya, Madhya Pradesh ?, Punjab, Sikkim, Uttarakhand, Uttar Pradesh, West Bengal
346.	<i>Sphaerophoria ladakhensis</i> Ghorpadé, 1994	Jammu Kashmir
347.	<i>Sphaerophoria macrogaster</i> (Thomson, 1869)	Andhra Pradesh Kerala, Karnataka, Meghalaya, Maharashtra, Madhya Pradesh, Punjab, Sikkim, Tamil Nadu, West Bengal
348.	<i>Sphaerophoria rueppellii</i> (Wiedemann, 1830)	Jammu Kashmir
349.	<i>Sphaerophoria scripta</i> (Linnaeus, 1758)	Gujarat ?, Jammu Kashmir
350.	<i>Sphaerophoria viridaenea</i> Brunetti, 1915	Himachal Pradesh, Jammu Kashmir, Sikkim?, Uttarakhand, West Bengal
351.	<i>Sphaerophoria vockeroth</i> Joseph, 1970	Arunachal Pradesh, Assam
352.	<i>Syrphus dalhousiae</i> Ghorpadé, 1994	Himachal Pradesh, Jammu Kashmir, Uttarakhand
353.	<i>Syrphus fulvifacies</i> Brunetti, 1913	Arunachal Pradesh, Himachal Pradesh, Jammu Kashmir, Meghalaya, Sikkim, Uttarakhand, West Bengal
354.	<i>Syrphus howletti</i> Ghorpadé, 1994	Jammu Kashmir
355.	<i>Syrphus ribesii</i> (Linnaeus, 1758)	Himachal Pradesh, Jammu Kashmir, Uttarakhand
356.	<i>Syrphus torvus</i> Osten Sacken, 1875	Himachal Pradesh, Jammu Kashmir, Sikkim?, Uttarakhand, West Bengal?
357.	<i>Syrphus agraensis</i> Nayar & Nayar, 1965 nom. nud.	Uttar Pradesh

The list is prepared mainly based on available literatures from India. Most of the scientific names and taxonomic rank of the species are in accordance with the most recent checklist by Ghorpade (2014c) ^[40], Shah *et al.* (2014) ^[95], *Systema Dipterorum* (Pape and Evenhuis, 2013) ^[91] and Mitra *et al.* (2008) ^[79].

From these 357 species of hover flies, more than 100 species are restricted in India. Considering to the distribution of syrphid species in the different states and union territories of India, West Bengal represents maximum number of Syrphidae about 33.33% followed by Uttarakhand (26.33%), Himachal Pradesh (22.41%), Jammu & Kashmir (22.13%), Meghalaya (19.89%), Arunachal Pradesh (15.97%), Assam (15.13%), Chandigarh (14.57%), Tamil Nadu (14.57%), Sikkim (14.29%), Karnataka (12.89%), Kerala (11.2%), Punjab (10.08%), Bihar (8.4%), Delhi (7.28%), Andhra Pradesh (5.6%), Madhya Pradesh (5.33%). 5.88% of the total species of Syrphidae from India are with no specific locality (not

known or widespread).

Andhra Pradesh was divided into two states, Telangana and a residual Andhra Pradesh on 2nd June 2014 ("Bifurcated into Telangana State and residual Andhra Pradesh State". The Times of India. 2 June 2014). But in this communication Andhra Pradesh represents both Telangana and residual Andhra Pradesh.

There are some states and union territories from where very least number of Syrphidae was reported, such as Tripura (0.28%), Nagaland (0.56%), Mizoram (0.56%), Jharkhand (0.56%), Goa (0.56%), Haryana (1.68%), Andaman & Nicobar (1.96%), Pondicherry (2.24%), Orissa (2.24%), Rajasthan (2.52%), Gujarat (4.2%), Uttar Pradesh (4.76%), Maharashtra (4.76%). (Fig. – 2)

To conclude, it can be said that the more number of species are awaiting to be described from these under explored states of India.

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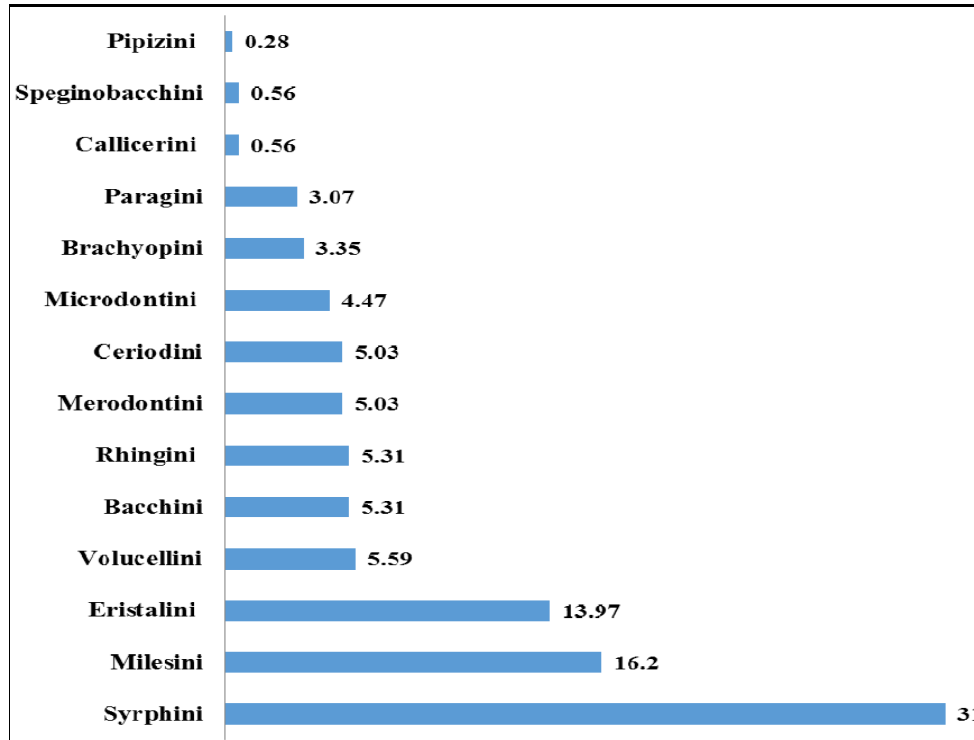


Fig 1: Percentage of species from each Tribe of Family Syrphidae

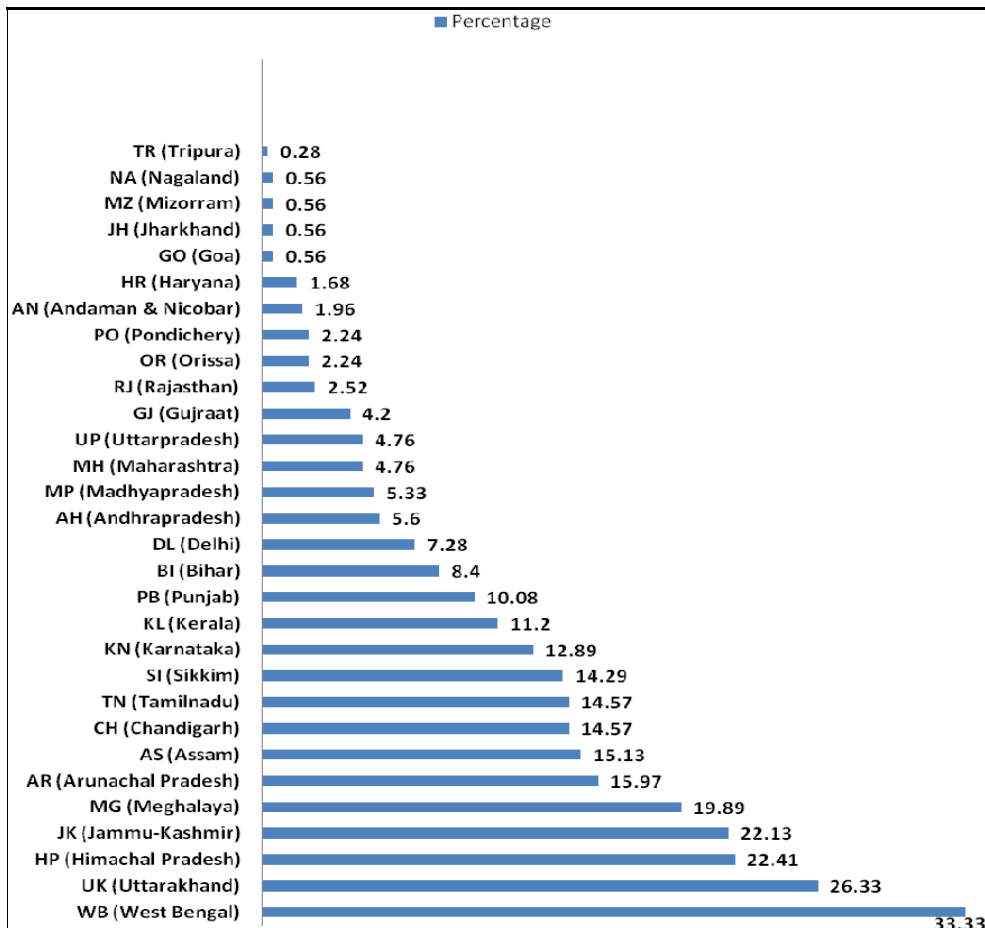


Fig 2: percentage of syrphidae from states and union territories of India

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