

THE TRIBE SYRPHINI (DIPTERA: SYRPHIDAE) IN THE INDIAN SUBCONTINENT

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ABSTRACT

The tribe Syrphini in India and neighbouring countries, representing the Indian Subregion of the Oriental Zoogeographical Region, is reviewed. More than 10,000 specimens of this and other tribes of the subfamily Syrphinae were examined from here and from other parts of the Oriental Region, as well as from the Palaearctic, Australian and "Pacific" Regions. Types of most names proposed for the included (or erroneously recorded) taxa, including current junior synonyms, were examined and lectotypes have been designated for . A key to Indian genera as well as those to species of each genus, polytypic in this area, are provided. Male terminalia of almost all species for which males are known, are illustrated. Diagnostic descriptions of every species and diagnoses of each genus are given. For every taxon, the synonymy, literature references and pertinent taxonomic discussions are also presented. Maps showing the range of each genus in the Indian Subregion are also included. Finally, an attempt is made to present generic interrelationships and zoogeographical considerations of Indian Syrphini.

A total of 108 species in 32 genera are treated, including two new genera (Agnisyrphus Ghorpadé, Vockerothia Thompson & Ghorpadé), four genera new to the Subregion (Macrosyrphus Matsumura, Megasyrphus Dusek & Laska, Melangyna



Verrall, Parasyrphus Matsumura), one genus given that status newly (Macrosyrphus Matsumura), and another, Rhinobaccha de Meijere, transferred from the tribe Bacchini to the Syrphini. Ischyrosyrphus Bigot is included based only on the record of sivae Bigot from India (the type is apparently lost). Besides the two new genera described here, the other 27 genera included and confirmed as Indian are: Allobaccha Curran, Allograpta Osten Sacken, Asarkina Macquart, Asiobaccha Violovitsh, Betasyrphus Matsumura, Chrysotoxum Meigen, Citrogramma Vockeroth, Dasysyrphus Enderlein, Didea Macquart, Dideoides Brunetti, Dideopsis Matsumura, Eosphaerophoria Frey, Epistrophe Walker, Episyrphus Matsumura, Eriozona Schiner, Ischiodon Sack, Leucozona Schiner, Macrosyrphus Matsumura, Megasyrphus Dusek & Laska, Melangyna Verrall, Meliscaeva Frey, Metasyrphus Matsumura, Parasyrphus Matsumura, Rhinobaccha de Meijere, Scaeva Fabricius, Sphaerophoria Le Peletier & Serville, and Syrphus Fabricius.

Of the 108 species included, the following 42 are newly described:

Agnisyrphus angara, A. gressitti; Allobaccha binghami, A. sanjanae; Allograpta dravida; Asarkina ayyari, A. belli, A. bhima, A. hema, A. pitambara; Betasyrphus fletcheri, B. linga; Chrysotoxum corbetti; Citrogramma chola, C. henryi; Dasysyrphus darada, D. gurkha, D. pandu, D. rossi; Didea poorva, D. vockerothi; Epistrophe kingdonwardi; Leucozona brunettii, L. vichitra, L. virendra; Megasyrphus deodarae; Meliscaeva cinctelloides, M. kusuma, M. magnifica, M. malaisei, M. maxwelli, M. shevaroya; Metasyrphus giriya, M. laskai; Parasyrphus kashmiricus, P. sherpa, P. thompsoni; Rhinobaccha krishna, R. montana, R. peterseni; Sphaerophoria knutsoni, S. ladakhensis; and Syrphus dalhousiae. Three species, Sphaerophoria rueppellii (Wiedemann), Syrphus ribesii (Linné), and Syrphus vitripennis Meigen, are recorded from the Indian Subregion for the first time.



The ten new combinations proposed are: Betasyrphus aeneifrons (Brunetti), B. bazini (Brunetti), B. isaaci (Bhatia), B. rufiventris (Brunetti), B. transversus (Brunetti); Melangyna remota (Brunetti); Meliscaeva tribeni (Nayar); Metasyrphus annandalei (Brunetti); Scaeva indica (Nayar) and S. pruthii (Deoras). The following 26 new junior synonyms are also proposed: Allobaccha sapphirina (Wiedemann) (= umbrosa Brunetti); Asarkina incisuralis (Macquart) (= formosae Bezzi); Betasyrphus aeneifrons (Brunetti) (= transversus Brunetti); B. bazini (Brunetti) (= albipilus Coe); Chrysotoxum antiquum Walker (= convexum Brunetti); Dasysyrphus orsua (Walker) (= brunettii Hervé-Bazin); Dideoides kempii Brunetti (= pellucidipennis Coe); D. tigerinus (Bigot) (= chrysotoxoides Curran); Dideopsis aegrota (Fabricius) [= hemipennis Hull (nomen nudum ?) and pura Curran]; Episyrphus viridaureus (Wiedemann) (= formosae Sack, graptus Hull, heterogaster Thomson, nectarinus Wiedemann and triligatus Walker); Macrosyrphus confrater (Wiedemann) (= macropterus Thomson, okinawae Matsumura and torvoides de Meijere); Metasyrphus nuba (Wiedemann) (= annandalei Brunetti); Scaeva albomaculata (Macquart) (= sulphureus Sack); S. latimaculata (Brunetti) (= indica Nayar, montana Violovitsh and pruthii Deoras); Sphaerophoria bengalensis Macquart (= turkmenica Bankowska); S. macrogaster (Thomson) (= poonaensis Joseph); and Syrphus ribesii (Linné) (= himalayanus Nayar).



## Introduction

The Syrphidae (Diptera: Cyclorrhapha: Aschiza) is a large, widespread family of true flies, attractively patterned and economically beneficial. These flies are characterized by the almost uniformly present 'vena spuria' (spurious vein) in the wing and by the habit of hovering of many species. Perhaps most of the 5,000 or more species described in some 500 genus-group taxa mimic bees or wasps, many very effectively (see Glumac, 1962). As adults, the majority of syrphids feed on nectar and pollen, which they obtain by visiting flowers and these flies rank close to the bees (Hymenoptera: Apoidea) as important pollinators of several plant species, both wild and cultivated. The flies also feed on honeydew produced by several Homoptera as well as drink free water. The larvae, on the other hand, are either predacious on other insects (mainly Homoptera), or are saprophytic or phytophagous. Of the latter, a few are known to damage cultivated plants, but, almost invariably, are secondary 'pests', feeding on the plant after primary damage has been done by another organism. Some larvae, consumed by man through drinking putrid water, cause accidental myiasis.

The predacious species belong to the subfamily Syrphinae and to the tribe Pipizini of the subfamily Eristalinae. Species of the other subfamily, the Microdontinae, which occur as immatures in nests of ants (Hymenoptera: Formicidae), are known to be predatory on ant immatures (van Pelt & van Pelt, 1972; Akre et al., 1973; Duffield, 1981; Thompson, 1981). In the Indian subcontinent, Microdon bellus Brunetti was found in nests of the ant Crematogaster dohrni Mayr in northeastern India (Das, 1959). A synoptic list of the insect prey groups of predacious syrphids, together with recorded prey of Indian species, was compiled by Ghorpadé (1981). The other major activity





of the hover-flies which is of use to man and the environment, pollination, is less well known and needs study.

In order that we may learn more about these beneficial aspects of the Syrphidae, to be able to utilise them for our benefit as well as conserve hover-flies for the good of our environment, we need a large amount of data. The basic requirement is a sound understanding of the systematics, phylogeny, zoogeography, natural history and ecology of the family, more particularly of the predacious Syrphinae. In recent years, a lot of work has been carried out on the taxonomy of Syrphidae, but relatively little on the Oriental fauna.

#### Historical Overview

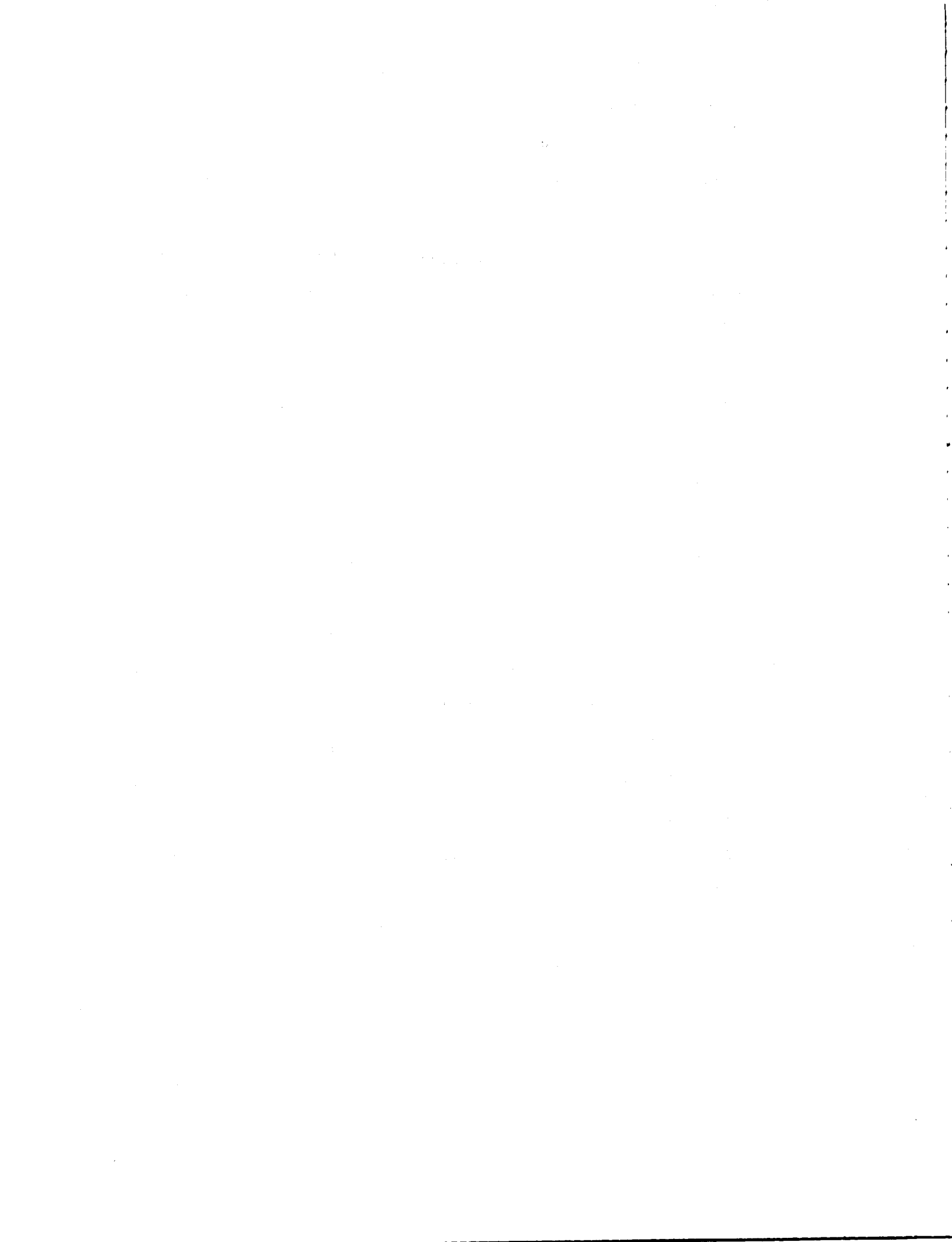
The last comprehensive revision of Indian Syrphidae was completed by Brunetti (1923). Since then, there is very little taxonomic work on Indian Syrphini, or, for that matter, on any other tribe of the family, which had 312 species in 71 genera described from the subcontinent (Knutson et al., 1975). The important works, including descriptions of new taxa or reporting sufficiently large collections from regions within the area, are of Hervé-Bazin (1924: additions and corrections to Brunetti's monograph), Bhatia & Shaffi (1933: life histories and new species) Deoras (1943: new species), van Doesburg, Sr (1955: Karakoram), Keiser (1958: Sri Lanka), Coe (1964: Nepal), Nayar (1968: northwest Himalaya), Joseph (1967, 1968, 1970: Sphaerophoria systematics), Lambeck & Kiauta (1973: Nepal), and Lambeck & van Brink (1973: Kashmir).



Vockeroth (1969) revised the world genera of the tribe Syrphini, after similar, more restricted treatments of central European Syrphinae (Dusek & Laska, 1967) and Palaearctic Syrphini (Hippra, 1968). These studies made it apparent that the Indian fauna (and those of other regions of the world) needed to be examined in the light of revised generic concepts, using more stable morphological characters, e.g., male terminalia, wing microtrichia and pleural hairing. The recent catalogue of Oriental Syrphidae by Knutson et al. (1975) did a great deal to stabilize nomenclature and update information. However, since there has been no revisionary work on any genus of Indian Syrphini, I have reviewed the tribe in the Subregion.

A brief summary of the major written works on the taxonomy of the Syrphini, zoogeographic region by region, is given and the major papers of general interest worldwide are mentioned. This is expected to complement the excellent review of systematics and zoogeography of the Syrphini prepared by Vockeroth (1969), which is an essential tool for any work on this tribe .

The works of Matsumura & Adachi (1916, 1917, 1917a) and of Matsumura (1918) were the first serious attempts to break up the very large and unwieldy genus Syrphus Fabricius. Matsumura's proposed new genera were called 'vague' by Vockeroth (1969: 15) and were either ignored, not accepted or treated in part for a long time by most syrphid specialists [Curran (1923-1947), Fluke (1933, 1935, 1950, 1952, 1954), Goffe (1943, 1944, 1944a, 1946, 1952), Hull (1949)], until Dusek & Laska (1967), Hippra (1968) and Vockeroth (1969) evaluated most names and revived some of them. Shiraki (1930) treated most of Matsumura's genera as synonyms and synonymized many of Matsumura's species with well known Palaearctic ones. I pointed out (Ghorpadé, 1981b: 90) how all of Matsumura's new generic concepts were either valid now or were only junior synonyms of older names of genera now thought valid. The comprehensive paper on the male terminalia (not genitalia only, as some terminal abdominal



segments are also included and carry important characters) of Syrphidae by Metcalf (1921), made new and badly needed interspecific characters available, but were actually used very much later, especially by Fluke (1950, etc.), for taxa of Syrphini. Shannon (1921, 1922, 1922a, 1924), Shiraki (1949), Goffe (1952), Glumac (1961b), Thompson (1969, 1972) and Shatalkin (1975, 1975a) attempted revised classifications of the subfamilies and suprageneric taxa of the Syrphidae on phylogenetic (or otherwise) lines. Frey (1946) presented a key to the 'Syrphinae+Bacchinae' genera and described some new ones. Hull (1945) revised the fossil Syrphidae, and, in his world review (Hull, 1949) of the genera of Syrphidae, lumped many distinct genera of Syrphini so that his classification bears little resemblance to that prevailing today.

However, in the latter half of the sixties, three papers on the Syrphini were published (Dusek & Laska, 1967; Hippa, 1968; Vockeroth, 1969) which bore an uncanny resemblance to each other (see Dusek & Laska, 1972), aside from a few minor differences, and which have laid a firm foundation for systematic research on this tribe. Vockeroth (1971, 1973, 1973a) and Dusek & Laska (1972, 1973, 1974, 1976, 1980) continued work on the tribe, dealing with individual genera in a comprehensive manner and showing the kind of detailed work that is necessary today.

The basis of catalogues for each of the zoogeographic regions has been achieved with these contributions -- Nearctic (Osten Sacken, 1875, 1878; Aldrich, 1905; Wirth et al., 1965; Sabrosky, 1967, 1971, 1978), Neotropical (Fluke, 1956, 1957, 1960; van der Goot, 1964; Thompson et al., 1976), Palaearctic (Becker et al., 1907; Sack, 1932), Afrotropical (Smith & Vockeroth, 1980), Oriental (Bigot, 1891, 1892; van der Wulp, 1896; Hull, 1936, 1937; Knutson et al., 1975), and Australian (Hull, 1936). A world catalogue was published by Kertész (1910), while Hull (1949) presented a review, with keys, to genera of Syrphidae.



As regards the major taxonomic papers (mostly in the present century, after Kertész, 1910) on the tribe Syrphini in each of these zoogeographic regions, following is a short list:

Nearctic -- Williston, 1886; Osten Sacken, 1877; Metcalf, 1913, 1916, 1917, 1921; Curran, 1921, 1923, 1924, 1925a, 1929a, 1930b, 1932; Hull, 1925, 1943; Shannon, 1926; Fluke, 1931, 1933, 1935, 1950, 1952, 1954; Knutson, 1973; Vockeroth, 1980, 1983.

Neotropical -- Austen, 1893; Williston, 1891, 1892; Curran, 1927, 1930, 1930a, 1932, 1934, 1939b, 1941; Shannon, 1927; Hull, 1937a, 1942, 1943, 1943a, 1947, 1949b, 1951; Fluke, 1942; Frey, 1946; van der Goot, 1964; van Doesburg, Sr, 1970; Vockeroth, 1973a; Thompson, 1981.

Palaeartic -- Verrall, 1901; Bezzi, 1903, 1908; Matsumura, 1911, 1916; Matsumura & Adachi, 1916, 1917, 1917a; Matsumura, 1918; Shiraki, 1930; Stackelberg, 1930; Sack, 1932; Goffe, 1933, 1943, 1944, 1944a, 1946, 1947, 1952; Reinig, 1935; Enderlein, 1938; Szilady, 1940; Collin, 1944; Coe, 1953, 1960; Gaunitz, 1954, 1960, 1963; Séguy, 1961; Glumac, 1961; Vockeroth, 1963, 1971, 1973; Bankowska, 1964, 1967, 1968, 1969; Dusek & Laska, 1964, 1967, 1972, 1973, 1974, 1976, 1980; Peck, 1966, 1968, 1969, 1972, 1974; Hippa, 1968; Andersson, 1970a; Speight, 1973; Goeldlin, 1974; Speight et al., 1975; Violovitsh, 1956, 1957, 1960, 1964, 1965, 1966, 1973, 1974, 1975, 1975a, 1975b, 1976, 1981, 1982.

Afrotropical -- Bezzi, 1915; Efflatoun Bey, 1922, 1925, 1926; Curran, 1938, 1938a, 1939, 1939a; Hull, 1941, 1964; van Doesburg, Sr, 1957; Keiser, 1971; Vockeroth, 1973b; Shaumar & Kamal, 1977; Nayar, 1978, 1978a, 1979; Ghorpadé, 1981b.

Oriental -- Austen, 1893; Kertész, 1899, 1901, 1913, 1914; Brunetti, 1907, 1907a, 1908, 1913, 1913a, 1915, 1917, 1919, 1923, 1925; Bezzi, 1908, 1928; de Meijere, 1908, 1910, 1914; Matsumura, 1910, 1911; Matsumura & Adachi, 1916,





1917, 1917a; Sack, 1913, 1922, 1926, 1927, 1931, 1932a, 1935; Hervé-Bazin, 1914, 1923, 1924, 1926; Senior-White, 1922; Shannon, 1926; Curran, 1927, 1928, 1929, 1931, 1931a, 1931b, 1942, 1947; Shiraki, 1930, 1963; Bhatia & Shaffi, 1933; Hull, 1937a, 1944, 1949a, 1950; Deoras, 1943; Frey, 1946; Keiser, 1952, 1958; van Doesburg, Sr, 1955, 1966; Sasakawa, 1960; Bankowska, 1962, 1964; Coe, 1964; Nayar, 1968a; Joseph, 1967, 1968, 1970; Vockeroth, 1971, 1973; Joseph & Ramachandra Rao, 1972, 1972c; Joseph & Parui, 1973, 1977, 1977a; Joseph & Sharma, 1973; Lambeck & Kiauta, 1973; Lambeck & van Brink, 1973; Joseph & Ray, 1976.

Australian -- Miller, 1921; Hardy, 1921, 1933; Klöcker, 1924; Ferguson, 1926, 1926a; van Doesburg, Sr., 1966; Vockeroth, 1971.

Finally, a chronicle of the papers published on Indian Syrphini is included, to present a detailed picture of the research work that has been done on the tribe in the subcontinent. The works of Nietner (1861) and Cotes (1893, 1895) were perhaps the only ones to deal with applied studies on Indian species of Syrphini before the first decade of this century. Early descriptive work, of scattered species and genera, based on collections made by voyages and expeditions to the Orient, were by Linné (1758), Fabricius (1775, 1781, 1787, 1794, 1805), De Geer (1776), Meigen (1822), Wiedemann (1824, 1830), Le Peletier & Serville (in Latreille et al., 1828), Macquart (1834, 1842, 1846, 1855), Loew (1840, 1858), Rondani (1845, 1875), Walker (1849, 1852, 1857, 1860, 1871), Doleschall (1856, 1857), Schiner (1860), Thomson (1869), Osten Sacken (1875, 1877), van der Wulp (1881, 1896), Bigot (1882, 1884, 1885, 1891, 1892), Austen (1893), Coquillett (1898), Kertész (1899, 1901), Verrall (1901), and de Meijere (1908, 1910, 1914).



In the beginning of the present century, an Italian musician, interested in the study of Diptera in his spare time, Enrico Brunetti (see Prashad, 1927 and Senior-White, 1927 for details of his life and work), started work on Indian Syrphidae and other families of Diptera. In preliminary papers (Brunetti, 1907, 1913, 1913a), he listed some syrphids from the Himalaya and Assam [The Himalayan Mountains, spanning the northern boundaries of the Indian subcontinent, are correctly termed the Himalaya (= "abode of snow", in Sanskrit), as Mani (1974) emphasised, and not the "Himalayas". What was known as "Assam" previously, is now made up of seven Indian States and Union Territories -- Arunachal Pradesh, Assam (s. str. !), Manipur, Meghalaya, Mizoram, Nagaland and Tripura]. His first major paper (Brunetti, 1907a: figures, 1908: descriptions) dealt with several genera of Syrphidae from India and the rest of the Orient. In a second, more comprehensive paper (Brunetti, 1915) on Oriental Syrphidae, he described more species from the subcontinent. Another paper on syrphids from Simla (Brunetti, 1917) was followed by one on a new (?) Didea from Iran (Brunetti, 1919). The Fauna of British India series enabled him to complete a comprehensive revision of Indian Syrphidae (Brunetti, 1923), which is the only reference on this fauna even to this day. He later followed it up (Brunetti, 1925) with additions and corrections to the Fauna volume, as did Hervé-Bazin (1924).

Bezzi (1908) dealt with Oriental and other species of Asarkina and Howlett (1909), an early Indian Dipterist, wrote the section on Diptera (including Syrphidae) for Maxwell-Lefroy's Indian Insect Life. Fletcher (1914) gave notes and illustrations of common south Indian syrphids. Senior-White (1922), also interested in Indian Diptera at that time, reported several Syrphini and other hover flies from the Khasi Hills and compared the fauna with that in Sri Lanka, where he had collected earlier. Shannon (1926) reviewed the genus Chrysotoxum and described a new species from Ladakh. Bhatia & Shaffi (1933)



wrote an important paper on the immatures of Indian Syrphini with coloured and pen and ink illustrations and also described a new "Syrphus". Cherian (1934) listed syrphids from south India mainly from the collection in the Agricultural College at Coimbatore in Tamil Nadu, India. Sack (1932) dealt with the first list of Syrphidae from the Karakoram Mountains and it was followed later by that of van Doesburg, Sr (1955). Ahmad (1940), Bankowska (1967, 1968, 1969) and Dusek & Laska (1980) reported on collections of Syrphidae from Afghanistan which have a fauna related to that in the Indian subcontinent, with several Oriental species reaching their western limits in that country. Deoras (1943) described a new "Xanthogramma" which I found here to be Scaeva latimaculata (Brunetti). Some Indian Syrphidae were described by Hull (1941, 1944) from the British Museum (Natural History) collections. Singh et al. (1955) and Mani (1962, 1968) listed syrphids from the northwest Himalaya, Usman & Puttarudriah (1955) and Puttarudriah & ChannaBasavanna (1957) from Karnataka, DeSilva (1961) from Sri Lanka, Alam & Hafiz (1963) from Pakistan, and Nayar & Nayar (1965) and Anand et al. (1967) from the north Indian plains.

Keiser (1958) dealt comprehensively with the Syrphidae of Sri Lanka, based on his own extensive collections, and this was the most important taxonomic paper on Indian Syrphidae after Brunetti's (1923) monograph. Joseph (1967, 1968, 1970) treated the Indian species of Sphaerophoria in a series of papers, which was the closest anyone got to a revision of an Indian genus of the tribe Syrphini. Later, with some co-authors, he reported on collections of syrphids from northeast India (Joseph & Ramachandra Rao, 1972, 1972a; Joseph & Parui, 1973, 1977, 1977a; Joseph & Ray, 1976; Joseph & Sharma, 1976). In another extensive paper on the Syrphinae of India, Nayar (1968) described and listed



some species from the northwest Himalaya. Patel & Patel (1969, 1969a) reported some Syrphini and their prey from Gujarat, and V.P. Rao (1969) from several parts of India. Gokulpure (1972) listed some species from central Madhya Pradesh. Two other important papers on Indian Syrphini (Lambeck & Kiauta, 1973; Lambeck & van Brink, 1973) appeared on the syrphid fauna of Nepal and Kashmir, respectively. Ghosh (1974) listed syrphid predators of Indian aphids and Biswas et al. (1975) reported on a collection from Meghalaya. Patnaik et al. (1977) gave records of aphidophagous syrphids from Orissa, and Raychaudhuri et al. (1978, 1979) from northeast India. Finally, Roy & Basu (1978) described the life histories of three species of Syrphini from West Bengal, and Zaka-ur-Rab (1979) treated the male terminalia of a Sphaerophoria species.

Ghorpadé (1973) gave new records of prey for Allograpta javana (Wiedemann) from south India and later submitted an unpublished thesis on the Syrphidae of Bangalore, Karnataka, with descriptions and illustrations of male terminalia and records of prey, along with a review of literature on Indian Syrphidae (Ghorpadé, 1973a, 1974). A comprehensive review of the insect prey of Indian Syrphidae, along with new records, and a summation of prey groups attacked by species of this family was presented later (Ghorpadé, 1981). A thesis (Ghorpadé, 1981a: again unpublished) on a taxonomic revision of the Syrphini of the Indian subcontinent, on which the present review is based, was submitted the same year. Ghorpadé (1981b) while describing a new Episyrphus from Madagascar, proposed a new synonym of balteatus (De Geer) and commented on Matsumura's genera of Syrphini. The tribe Chrysotoxini, with the single genus Chrysotoxum Meigen, was transferred to the tribe Syrphini (Ghorpadé, 1982).

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generic diagnosis. The discussion under each genus gives a historical resume of the work so far done in the Indian subcontinent, together with a summary of present findings. The zoogeographical distribution of the genus is mentioned and its range in the Indian subcontinent is shown in a map. In the keys to each genus containing more than one species, an attempt is made not to include characters of male terminalia as far as possible. The male terminalia (or diagnostic parts of it), of most species of which I have seen males, have been illustrated.

For each species, the regional synonymy (sources of extralimital synonyms are indicated where necessary) is followed by a list of the more important references (with annotations) and those with "recorded" distributional data. Only the first reference giving a particular locality is cited, and later ones ignored if no new localities mentioned. Unless I have seen specimens on which these records were based, I have retained such references under species for whom they were recorded, even if now doubtful or apparently incorrect. One species of each genus is fully described and diagnostic descriptions are provided for the other species in comparison to it. In the list of specimens examined, complete label data are given only for primary type material of known species. For secondary type material (unless unique or of a limited number) and other specimens examined, only locality data (names correctly spelled, if wrong) are included, for reasons of brevity. Altitudes given in feet are converted into metres. Full label data of all specimens examined by me will be furnished in forthcoming revisions of each of the Oriental genera of Syrphidae. The flight period of each species includes months cited on specimen labels; exact dates of specimens collected are omitted for reasons of brevity. Confirmed distribution of each species (by Indian States and

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adjacent countries, in the Indian subcontinent) is given, based on material actually seen by me, or on localities, cited in previous literature, that I have no reason to doubt. Locality names have generally been retained in their anglicized forms, for convenience. In the remarks, pertinent taxonomic information is included, along with notes on other specimens seen from outside of the subcontinent or on other Oriental species, if relevant.

Finally, the sections on "Generic Interrelationships" and "Zoogeographic Considerations" attempt to deal succinctly with my interim analyses of these aspects of Indian Syrphini, with notes on other extra-regional taxa where necessary. The list of references includes all authors' works cited in this review and should prove useful to syrphid enthusiasts, especially those interested in the tribe Syrphini in the Oriental Region.

With regard to the types of Brunetti, even though he did not use the term "holotype", but labelled them as "type" and "cotype", I have considered his "type" as the holotype and his type + and cotypes as paratypes. The following passage from Brunetti's (1912) Preface to his first Fauna of British India volume (pp. v-viii) is my reason for doing so.

"As regards the use of the words 'type,' 'cotype,' and so on, there seems no necessity to discuss the various terms with their exact meanings here, in view of the different opinions of the zoologists on this subject; and more especially as the simple terms 'type' and 'cotype' fulfil all the requirements in this work. Yet a few remarks to avoid ambiguity to the student, and that he may at least understand the senses in which the terms are understood by me, may be pardonable. Personally, when describing a new species, of which several specimens of each sex are present, I select one male and one female which, (1) embody the whole of the bulk of the characters of the species, (2) are in as perfect condition as possible, and (3) from their mounting allow the best view of all parts of the body.

...in the Indian subcontinent) is given, based on material  
actually seen by me, or on localities, cited in previous literature, that I  
have no reason to doubt. Locality names have generally been retained in their  
original forms, for convenience. In the remarks, pertinent taxonomic  
information is included, along with notes on other specimens seen from outside  
of the subcontinent or on other Oriental species, if relevant.  
Finally, the sections on "General Interrelationships" and "Zoogeographic  
Considerations" attempt to deal succinctly with my interim analyses of these  
aspects of Indian Synchronism, with notes on other extra-regional taxa where  
necessary. The list of references includes all authors' works cited in this  
review and should prove useful to synchronism enthusiasts, especially those  
interested in the tribe Synchronini in the Oriental Region.  
With regard to the types of Brunetti, even though he did not use the term  
"holotype", but labelled them as "type" and "cotype", I have considered his  
"type" as the holotype and his type + and cotypes as paratypes. The following  
passage from Brunetti's (1912) Preface to his first Fauna of British India  
volume (pp. v-viii) is a reason for doing so.  
"As regards the use of the words 'type', 'cotype', and so on, there seems no  
necessity to discuss the various terms with their exact meanings here, in view  
of the different opinions of the zoologists on this subject; and more  
especially as the simple terms 'type' and 'cotype' fulfil all the requirements  
in this work. Yet a few remarks to avoid ambiguity to the student, and that  
he may at least understand the senses in which the terms are understood by me,  
may be desirable. Personally, when describing a new species, of which  
several specimens of each sex are present, I select one male and one female  
which, (1) embody the whole of the bulk of the characters of the species; (2)  
are in as perfect condition as possible; and (3) from their mounting allow the  
best view of all parts of the body.

"These two specimens are termed the type male and type female, and whenever both sexes are present, the type male is always the type of the species. All other specimens present before me at the time of describing are termed cotypes. When only one sex is present, the type specimen may be male or female. In the event of two species being described under the impression that the specimens represented the two sexes of a single species, the name of the species must invariably be retained for the male, which takes precedence of the female, and a new name would have to be found for the latter.

"It has always been my endeavour to describe the species and not merely the type specimens, as is too often done."

The matter of treatment of single extant types as "holotype" or "lectotype" has been discussed by Crosskey (1974: 272) and by Vane-Wright (1975: 26). In agreement with Thompson et al. (1982: 151) I treat such type specimens as a syntype that would have to be designated lectotype.

#### Depository Abbreviations

Collections of Syrphinae, either personal or in institutions, that were examined, are listed here in alphabetical order of their acronyms, used in this paper. An asterisk indicates that types were examined from the collection or are deposited there (newly described here). Collections that were not studied but which are listed in the paper by their acronyms to indicate depositories, are those without names of curators in parentheses.

"These two specimens are termed the type male and type female, and whenever both sexes are present, the type male is always the type of the species. All other specimens present before me at the time of describing are termed copies. When only one sex is present, the type specimen may be male or female. In the event of two species being described under the impression that the specimens represented the two sexes of a single species, the name of the species must invariably be retained for the male, which takes precedence of the female, and a new name would have to be found for the latter. It has always been my endeavour to describe the species and not merely the type specimens, as is too often done."

The matter of treatment of single extant types as "holotype" or "lectotype" has been discussed by Crosskey (1974: 278) and by Vane-Winkel (1977: 26). In agreement with Thompson *et al.* (1982: 151) I treat such type specimens as a syntype that would have to be designated lectotype.

#### Depository Abbreviations

Collections of Syrphidae, either personal or institutional, that were examined, are listed here in alphabetical order of their acronyms, used in this paper. An asterisk indicates that types were examined from the collection or are deposited there (newly described here). Collections that were not studied but which are listed in the paper by their acronyms to indicate depositories, are those without names of curators in parentheses.

AMNH\* American Museum of Natural History, New York, U.S.A.  
(P.W. Wygodzinsky).

ANIC Australian National Insect Collection, Commonwealth Scientific  
and Industrial Research Organization, Canberra City, Australia  
(D.H. Colless).

BMNH\* British Museum (Natural History), London, U.K. (B.H. Cogan,  
A.C. Pont and K.G.V. Smith).

BPBM\* Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.  
(W.A. Steffan).

BPIM Bureau of Plant Industry, Department of Agriculture, Manila,  
Philippines (S.J. Bayubay).

CAS\* California Academy of Sciences, San Francisco, U.S.A.  
(P.H. Arnaud jr).

CIBCI\* Commonwealth Institute of Biological Control, Indian Station,  
Bangalore, India (T. Sankaran).

CIBCP Commonwealth Institute of Biological Control, Pakistan Station,  
Rawalpindi, Pakistan (M.A. Ghani).

CNC\* Canadian National Collection, Biosystematics Research Institute,  
Agriculture Canada, Ottawa, Canada (J.R. Vockeroth).

CNM\* Colombo National Museum, Department of National Museums, Sri  
Lanka (P.H.D.H. de Silva).

CUIC Cornell University Insect Collection, Ithaca, U.S.A.  
(L.L. Pechuman).

DNHM Darjeeling Natural History Museum, Darjeeling, India (E.D.  
Avari).

EIHU Entomological Institute, Faculty of Agriculture, Hokkaido  
University, Sapporo, Japan.

AMNH*	American Museum of Natural History, New York, U.S.A. (P.W. Wygodzinsky).
ANIC	Australian National Insect Collection, Commonwealth Scientific and Industrial Research Organization, Canberra City, Australia (D.H. Colless).
BMNH*	British Museum (Natural History), London, U.K. (B.H. Coquillett, A.C. Pont and K.G.V. Smith).
BPM*	Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A. (W.A. Steffan).
BRIN	Bureau of Plant Industry, Department of Agriculture, Manila, Philippines (S.J. Raybald).
CAS*	California Academy of Sciences, San Francisco, U.S.A. (P.H. Axen and Jr.).
CGCI*	Commonwealth Institute of Biological Control, Indian Station, Bangalore, India (T. Sankaran).
CIBCP	Commonwealth Institute of Biological Control, Pakistan Station, Rawalpindi, Pakistan (M.A. Ghani).
CNC*	Canadian National Collection, Biosystematics Research Institute, Agriculture Canada, Ottawa, Canada (L.R. Vockeroth).
CNP*	Colombo National Museum, Department of National Museums, Sri Lanka (P.H.D.H. de Silva).
CUTC	Cornell University Insect Collection, Ithaca, U.S.A. (L.L. Pechuman).
DMNH	Darjeeling Natural History Museum, Darjeeling, India (E.D. Avari).
EIHU	Entomological Institute, Faculty of Agriculture, Hokkaido University, Sapporo, Japan.



FRI\* Forest Research Institute, Dehra Dun, India (Pratap Singh).

HNHM Termesztudományi Múzeum, Budapest, Hungary.

IAA Institute of Agriculture, Gujarat Agricultural University, Anand, India (H.K. Patel).

IARI\* Indian Agricultural Research Institute, New Delhi, India (S. Ghai).

ILRI Indian Lac Research Institute, Namkum, Ranchi, India (R.S. Gokulpure).

IRSNB\* Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium (P. Vanschuytbroeck).

KDG\* Personal collection of Kumar D. Ghorpadé.

MCSNG\* Museo Civico de Storia "Giacomo Doria", Genoa, Italy (R. Poggi).

MCZ\* Museum of Comparative Zoology, Harvard University, Cambridge, U.S.A. (J.C. Scott).

MNHN\* Museum National d'Histoire Naturelle, Paris, France (L. Matile).

MZBI Museum Zoologicum Bogoriense, Bogor, Indonesia (S. Adisoemarto and S. Kadarsan).

MZUF Museo Zoologico dell'Universita Firenze, Florence, Italy.

NMB Naturhistorisches Museum, Basel, Switzerland (C. Baroni Urbani).

NMV\* Naturhistorisches Museum, Vienna, Austria (R. Contreras-Lichtenberg).

NRS\* Naturhistoriska Riksmuseet, Stockholm, Sweden (P.I. Persson).

OUM\* Hope Department of Entomology, Oxford University Museum, Oxford, U.K. (M.C. Birch and M.J. Scoble).

Forest Research Institute, Dehra Dun, India (Pratap Singh).	IRI*
Természettudományi Múzeum, Budapest, Hungary.	HMM
Institute of Agriculture, Gujarat Agricultural University,	IAU
Amal, India (H.V. Patel).	
Indian Agricultural Research Institute, New Delhi, India	IAIR*
(S. Ghai).	
Indian Lac Research Institute, Jabalpur, India	ILRI
(R.S. Gokulnars).	
Institut Royal des Sciences Naturelles de Belgique, Bruxelles,	IRSNB*
Belgium (P. Vancoilliebroeck).	
Personal collection of Kumar B. Ghopade.	IRG*
Museo Civico de Storia "Giuseppe Toria", Genoa, Italy (R.	ICSG*
Foggi).	
Museum of Comparative Zoology, Harvard University, Cambridge,	MCZ*
U.S.A. (J.C. Scott).	
Museum National d'Histoire Naturelle, Paris, France	MNH*
(J. Mathis).	
Museum Zoologicum Bogoriense, Bogor, Indonesia (S. Adisasmito	MZBI
and S. Kadarsan).	
Museo Zoologico dell'Università Firenze, Firenze, Italy.	MZUF
Naturalhistorisches Museum, Basel, Switzerland (C. Baroni Urbani).	MNB
Naturhistorisches Museum, Vienna, Austria (R. Conrath-	MNV*
Lichtenberg).	
Naturhistoriska Riksmuseet, Stockholm, Sweden (P.L. Persson).	MRS*
Hughes Department of Entomology, Oxford University Museum, Oxford,	ODU*
U.K. (M.C. Birch and M.J. Scoble).	

PAS Institute of Zoology, Polish Academy of Science, Warsaw, Poland.

SAM The South Australian Museum, Adelaide, Australia (E.G. Matthews).

SEM Snow Entomological Museum, University of Kansas, Lawrence, U.S.A. (G.W. Byers).

SMF Senckenbergisches Museum, Frankfurt, Germany.

TDAB Department of Agriculture, Bangkok, Thailand (A. Lewvanich).

TNAU\* Tamil Nadu Agricultural University, Coimbatore, India (T.R. Subramanian and T. Kumaraswami).

UAS University of Agricultural Sciences, Bangalore, India (G.P. ChannaBasavanna and C.A. Viraktamath).

USNM\* National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A. (D.R. Davis and F.C. Thompson).

UZM\* Universitetets Zoologisk Museum, Copenhagen, Denmark. (L. Lyneborg and B. Petersen).

ZFMAK\* Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany (H. Ulrich).

ZIAS\* Zoological Institute, Academy of Sciences of the U.S.S.R., Leningrad, U.S.S.R. (V. Richter).

ZIUL Zoological Institute, University of Lund, Sweden (H. Andersson and P. Brinck).

ZMA\* Instituut voor Taxonomische Zoölogie, Zoologisch Museum, Universiteit van Amsterdam, The Netherlands (B. Brugge).

ZMHU\* Zoologisches Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (H. Schumann).

ZMUH\* Zoological Museum of the University, Helsinki, Finland (W. Hackman and B. Lindeberg).

ZSI\* Zoological Survey of India, Calcutta, India (T.N. Anantha-

182	Institute of Zoology, Polish Academy of Science, Warsaw, Poland.
183	The South Australian Museum, Adelaide, Australia (S.G. Matthews).
184	Snow Entomological Museum, University of Kansas, Lawrence, U.S.A. (G.W. Byers).
185	Senckenbergisches Museum, Frankfurt, Germany.
186	Department of Agriculture, Bangkok, Thailand (A. Dewavrinch).
187	Tamil Nadu Agricultural University, Coimbatore, India (T.R. Subramanian and T. Kumaraswami).
188	University of Agricultural Sciences, Bangalore, India (G.V. Channabasanna and G.A. Virakumar).
189	National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A. (D.R. Davis and F.C. Thompson).
190	Universitets Zoologisk Museum, Copenhagen, Denmark (J. Lyneborg and S. Petersen).
191	Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany (H. Ulrich).
192	Zoological Institute, Academy of Science of the U.S.S.R., Leningrad, U.S.S.R. (V. Vishnevsky).
193	Zoological Institute, University of Lund, Sweden (H. Andersson and P. Brink).
194	Instituut voor Taxonomische Zoölogie, Zoölogisch Museum, Universiteit van Amsterdam, The Netherlands (B. Brugge).
195	Zoologisches Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (H. Schumann).
196	Zoological Museum of the University, Helsinki, Finland (W. Hakman and B. Lindberg).
197	Zoological Survey of India, Calcutta, India (T.R. Anantha-

Checklist of Indian Syrphini

Genera or species previously reported from the Indian subcontinent in the literature, but not confirmed by the present study, are placed in square brackets.

AGNISYRPHUS Ghorpadé, gen. nov.

angara Ghorpadé, sp. nov.

gressitti Ghorpadé, sp. nov.

ALLOBACCHA Curran

amphithoe (Walker)

apicalis (Loew)

binghami Ghorpadé, sp. nov.

[dispar (Walker)]

elegans (Brunetti)

fallax (Austen)

sanjanae Ghorpadé, sp. nov.

sapphirina (Wiedemann)

triangulifera (Austen)

ALLOGRAPTA Osten Sacken

bouvieri (Hervé-Bazin)

Checklist of Indian Syrphid

Genera or species previously reported from the Indian subcontinent in the literature, but not confirmed by the present study, are placed in square brackets.

ADNIPHYRUS Ghorpade, gen. nov.

adniphorus Ghorpade, sp. nov.

brunneus Ghorpade, sp. nov.

ALLOBACCHA Curran

ambigua (Walker)

apicalis (Loew)

pinghami Ghorpade, sp. nov.

[dispar (Walker)]

elegans (Brunetti)

laxa (Austen)

santanae Ghorpade, sp. nov.

subopposita (Wiedemann)

trifasciata (Austen)

ALLOGRATA Osten Sacken

bovieri (Hervé-Bazin)

dravida Ghorpadé, sp. nov.

iavana (Wiedemann)

maculipleura (Brunetti)

ASARKINA Macquart

assimilis (Macquart)

ayyari Ghorpadé, sp. nov.

belli Ghorpadé, sp. nov.

bhima Ghorpadé, sp. nov.

biroi Bezzi

[ericetorum (Fabricius)]

hema Ghorpadé, sp. nov.

incisuralis (Macquart)

pitambara Ghorpadé, sp. nov.

porcina (Coquillett)

[salviae (Fabricius)]

ASIOBACCHA Violovitsh

nubilipennis (Austen)

BETASYRPHUS Matsumura

aeneifrons (Brunetti)

[adligatus (Wiedemann)]

bazini (Brunetti)

fletcheri Ghorpadé, sp. nov.

isaaci (Bhatia)

linga Ghorpadé, sp. nov.

[serarius (Wiedemann)]

bravida Ghorbadé, sp. nov.  
javana (Wiedemann)  
maculipennis (Brunetti)

ASARKINA Macquart

assulata (Macquart)  
ayyari Ghorbadé, sp. nov.  
belli Ghorbadé, sp. nov.  
shima Ghorbadé, sp. nov.  
dirai Bezzi  
[lenticularis (Fabricius)]  
nema Ghorbadé, sp. nov.  
incisuralis (Macquart)  
pitambari Ghorbadé, sp. nov.  
perina (Godtliedt)  
[salviae (Fabricius)]

ASTOBACCHA Violevisch

pubifemalis (Austin)

BETASYRPHUS Matsumura

geniferus (Brunetti)  
[adligatus (Wiedemann)]  
parvi (Brunetti)  
fletcheri Ghorbadé, sp. nov.  
isaaci (Matsumura)  
libra Ghorbadé, sp. nov.  
[sericus (Wiedemann)]



CHRYSOTOXUM Meigen

- antiquum Walker  
baphyrum Walker  
convexum Brunetti  
corbetti Ghorpadé, sp. nov.  
[festivum (Linné)]  
draco Shannon  
fasciolatum (De Geer)  
intermedium Meigen  
quadrifasciatum Brunetti

CITROGRAMMA Vockeroth

- chola Ghorpadé, sp. nov.  
clarum (Hervé-Bazin)  
citrinum (Brunetti)  
henryi Ghorpadé, sp. nov.

DASYSYRPHUS Enderlein

- darada Ghorpadé. sp. nov.  
gurkha Ghorpadé, sp. nov.  
orsua (Walker)  
pandu Ghorpadé, sp. nov.  
rossi Ghorpadé, sp. nov.

CHRYSOTOXUM Meigen

- antiprum Walker  
aphyrum Walker  
convexum Brunetti  
corsetti Ghorbadé, sp. nov.  
[festivum (Linné)]  
draco Shannon  
fasciolatum (De Geer)  
intercedum Meigen  
quadrifasciolatum Brunetti

CITROBAMA Vonkenroth

- chola Ghorbadé, sp. nov.  
clarum (Hervé-Bazin)  
citrinum (Brunetti)  
henryi Ghorbadé, sp. nov.

DASYRPHUS Enderslein

- darda Ghorbadé, sp. nov.  
gurbis Ghorbadé, sp. nov.  
ornis (Walker)  
panda Ghorbadé, sp. nov.  
rossi Ghorbadé, sp. nov.

DIDEA Macquart

[fasciata Macquart]

poorva Ghorpadé, sp. nov.

vockerothi Ghorpadé, sp. nov.

DIDEOIDES Brunetti

kempi Brunetti

ovatus Brunetti

tigerinus (Bigot)

trilineatus Brunetti

DIDEOPSIS Matsumura

aegrota (Fabricius)

EOSPHAEROPHORIA Frey

dentiscutellata (Keiser)

EPISTROPHE Walker

aequalis (Walker)

griseocincta (Brunetti)

kingdonwardi Ghorpadé, sp. nov.

quinquevittata (Brunetti)

EPISYRPHUS Matsumura

arcifer (Sack)

balteatus (De Geer)

viridaureus (Wiedemann)

DIDEA Macquart

[lascaris Macquart]

georva Ghorbadé, sp. nov.

vocherelli Ghorbadé, sp. nov.

DIDRISIDES Branstetter

kampi Branstetter

ovatus Branstetter

tigerinus (Bigot)

brillineatus Branstetter

DIDRISIDS Mulsant

segrois (Fabrice)

EPIDRISIDS Frey

dentiscutellata (Kollar)

EPITROPHE Walker

secalis (Walker)

griseolinea (Branstetter)

kingdonwrayi Ghorbadé, sp. nov.

cutpuevitata (Branstetter)

EPITYPHUS Mulsant

aroller (Sack)

palustris (De Geer)

viridulus (Wiedemann)

ERIOZONA Schiner

analis Kertész

ISCHIODON Sack

scutellaris (Fabricius)

[ISCHYROSYPHUS Bigot]

sivae Bigot

LEUCOZONA Schiner

brunettii Ghorpadé, sp. nov.

vichitra Ghorpadé, sp. nov.

virendra Ghorpadé, sp. nov.

MACROSYRPHUS Matsumura

confrater (Wiedemann)

MEGASYRPHUS Dusek & Laska

deodarae Ghorpadé, sp. nov.

MELANGYNA Verrall

remota (Brunetti)

ERIOZOMA Schiner

analis Kertész

ISCHIDON Zsok

scutellaris (Fabricius)

[ISCHIOSYRPHUS Bigot]

sivas Bigot

LEUCOZOMA Schiner

brunneitii Ghorbade, sp. nov.

vichitra Ghorbade, sp. nov.

virens Ghorbade, sp. nov.

MACROSYRPHUS Macanura

conrateri (Wiedemann)

MELASYSRPHUS Dusek & Laska

geodarae Ghorbade, sp. nov.

MELANOZYIA Verrall

tomota (Brunetti)

MELISCAEVA Frey

ceylonica (Keiser)  
[cinctella (Zetterstedt)]  
cinctelloides Ghorpadé, sp. nov.  
kusuma Ghorpadé, sp. nov.  
magnifica Ghorpadé, sp. nov.  
malaisei Ghorpadé, sp. nov.  
maxwelli Ghorpadé, sp. nov.  
[monticola (de Meijere)]  
shevaroya Ghorpadé, sp. nov.  
tribeni (Nayar)

METASYRPHUS Matsumura

corollae (Fabricius)  
giriya Ghorpadé, sp. nov.  
laskai Ghorpadé, sp. nov.  
[latifasciatus (Macquart)]  
[luniger (Meigen)]  
[nitens (Zetterstedt)]  
nuba (Wiedemann)

PARASYRPHUS Matsumura

kashmiricus Ghorpadé, sp. nov.  
sherpa Ghorpadé, sp. nov.  
thompsoni Ghorpadé, sp. nov.

RHINOACCHA de Meijere

gracilis de Meijere

ceylonica (Kaiser)

[clavata (Zetterstedt)]

cinereifolius Gorbade, sp. nov.

conspicua Gorbade, sp. nov.

dentata Gorbade, sp. nov.

dissecta Gorbade, sp. nov.

maxwelli Gorbade, sp. nov.

[monticola (de Meijere)]

shavrovae Gorbade, sp. nov.

tridentata (Nayar)

METASYRPHUS Matsumura

corollae (Fabricius)

grisea Gorbade, sp. nov.

lasciva Gorbade, sp. nov.

[laticinctus (Machado)]

[lunata (Meigen)]

[nitens (Zetterstedt)]

nuba (Wiedemann)

PARASYRPHUS Matsumura

caerulescens Gorbade, sp. nov.

gibbosa Gorbade, sp. nov.

thompsoni Gorbade, sp. nov.

RHINOZYGA de Meijere

gracilis de Meijere



krishna Ghorpadé, sp. nov.  
montana Ghorpadé, sp. nov.  
peterseni Ghorpadé, sp. nov.

SCAEVA Fabricius

albomaculata (Macquart)  
latimaculata (Brunetti)  
opimia (Walker)  
pyrastris (Linné)  
selenitica (Meigen)

SPHAEROPHORIA Le Peletier & Serville

assamensis Joseph  
bengalensis Macquart  
indiana Bigot  
knutsoni Ghorpadé, sp. nov.  
ladakhensis Ghorpadé, sp. nov.  
macrogaster (Thomson)  
rueppellii (Wiedemann)  
scripta (Linné)  
viridaenea Brunetti  
vockerothi Joseph

SYRPHUS Fabricius

dalhousiae Ghorpadé, sp. nov.  
fulvifacies Brunetti

krishna Ghorpade, sp. nov.  
montana Ghorpade, sp. nov.  
peterseni Ghorpade, sp. nov.

SCABVA Fabricius

albimanulata (Mason)  
latimanulata (Brunetti)  
opina (Walker)  
pyralis (Linné)  
semitica (Mason)

SPINEROTHORIX Le Peletier & Serville

assamensis Joseph  
bangalensis Mason  
indica Stål  
kulsoni Ghorpade, sp. nov.  
ledaknensis Ghorpade, sp. nov.  
mesopotamica (Thomson)  
trippelii (Wiedemann)  
scripta (Linné)  
viridipennis Brunetti  
vockeroti Joseph

STYPIUS Fabricius

dahouensis Ghorpade, sp. nov.  
fulvipes Brunetti

[nietneri Nietner]

ribesii (Linné)

torvus Osten Sacken

vitripennis Meigen

VOCKEROTHIA Thompson & Ghorpadé, gen. nov.

laticornis (Curran)

[Mietner's Mietner]

riberii (Linné)

forvii Oaten Sacken

vibrionis Meigen

VOCKEROOTHIA Thompson & Ghorpade, n. sp.

(Linné)