

Diagnostic keys to new and known genera and species of Indian subcontinent Syrphini (Diptera : Syrphidae)

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ABSTRACT. This paper provides keys to the 28 genera and 111 species (including 2 species not included in keys but with differences indicated in footnotes, based on descriptions in recent publications) of Indian subcontinent Syrphini recognized by me. Of these, 2 new genera (*Agnisyrrhus* and *Vockerothiella*) and 40 new species [of *Agnisyrrhus* (2 spp.), *Allobaccha* (2), *Allograpta* (1), *Asarkina* (5), *Betasyrrhus* (2), *Chrysotoxum* (1), *Citrogramma* (2), *Dasysyrphus* (3), *Didea* (2), *Epistrophe* (2), *Leucozona* (3), *Meliscaeva* (6), *Parasyrrhus* (3), *Rhinobaccha* (2), *Sphaerophoria* (2), & *Syrphus* (2)] are diagnosed and named. A checklist of the genera and species treated is included, with an explanatory section on the subcontinent's "Localities".

Enrico Brunetti completed a revision of Indian Syrphidae in the *Fauna of British India* series (1923), followed by a small paper (1925) as a supplement. Vockeroth (1969) presented an excellent review of the genera of world Syrphini, which made necessary a re-examination of the Indian fauna of this tribe, using more stable morphological characters, like male terminalia, wing microtrichia, pleural hairing, etc. The *Catalog of Oriental Syrphidae* by Knutson, Thompson & Vockeroth (1975) stabilized nomenclature and updated information, listing 23 genera and 78 species (inclusive of 6 subgenera and 9 unplaced species) of Syrphini from India and adjacent countries, out of a total of 71 genera and 312 species of the entire family Syrphidae from the subcontinent.

The only papers treating new taxa from this area, subsequent to those listed in the Oriental Catalogue, were by Dušek & Láska (1980, 1985) on Afghanistan *Metasyrrhus* (now *Eupeodes*) and world *Scaeva*; by Kuznetsov (1985) on Palaearctic *Scaeva*; by Datta & Chakraborti (1986) who described a new *Meliscaeva* from north-east India; by Vockeroth (1986) who decided that *Eupeodes* should be used for species placed in *Metasyrrhus*; by Ho (1987) who described new species of *Epistrophe*, *Megasyrrhus*, *Metasyrrhus* and *Scaeva* from Tibet (now Xizang); by Kohli, Kapoor & Gupta (1988) who described new species of "*Baccha*", *Chrysotoxum* and *Megasyrrhus* from the Himalayas and their foothills; and by Wyatt (1991) who reviewed the Indo-Australian genus *Citrogramma* and described five new species.

This paper is the result of my researches on Indian Syrphini, begun in 1971, presented as a M.Sc. thesis (1973) and as a Ph.D. dissertation (1981a) in India, and that formed the basis of my post-doctoral research programme at the Smithsonian Institution, Washington, D.C., U.S.A., in 1982-1983. I felt it important to validate the many new taxa I have discovered now, pending completion of a large revision of Indian subcontinent Syrphini that I am preparing in collaboration with Dr F.C. Thompson. This is being done in the present paper, especially since some recent authors like Datta & Chakraborti, Ho, Kohli *et al.*, and Wyatt have begun working on this tribe and are describing new taxa. Thompson and I have recently published (1992) a paper on Oriental *Paragus* (tribe Paragini), and besides preparing a revision of Indian Syrphidae, we are also working on other taxa of Oriental Syrphidae. A review and bibliography of the prey of Indian Syrphidae was published by me earlier (1981b), as well as a paper on *Episyrrhus* (1981c), and some notes on *Chrysotoxum* in a paper on *Callicera* (1982).

Here, I present diagnostic keys to the genera and species of Syrphini I have studied from India and neighbouring countries. I describe 2 new genera and 40 new species out of the 28 genera and 111 species I recognize from this area. Complete descriptions, with illustrations, of all these species, synonymy, prey and flower records, distribution (with detailed label data of types), and our remarks on relationships, etc., will be included in the present revision that Thompson and I are currently completing. We may also name and describe further new and known species in that paper, based on more recently examined material.

The morphological terminology adopted in this paper is based on that of Vockeroth (1969), for convenience, even though we dipterists are now advised to use the current terms employed in the *Manual of Nearctic Diptera*, volumes 1 & 2 (McAlpine *et al.*, 1981, 1987; see especially McAlpine, 1981 : 9-63 for adults), coordinated by the staff of the Biosystematics Research Centre, Agriculture Canada, in Ottawa. The characters of male terminalia are *not* used (except rarely) in my keys here, so as to help users identify genera and species *without* recourse to dissection. Genera with only a single species occurring in the Indian subcontinent are not keyed to species, but, instead, the relevant species, its local distribution, recorded flight period (by month), and sexes known, are presented in the key to genera where that genus keys out. Genera with 2 or more species in the area have separate keys to species of these genera. Recorded distribution and flight period (also sexes known) are given for every species, based on material actually examined by me, or on published records I accept as authentic. For the new species proposed here, I give basic label data for holotypes only, followed by sexes of paratypes and their localities. Depositories of new species types are also indicated, based on the collections from where these specimens were borrowed (if not in my personal collection), but, in our forthcoming revision, we may indicate deposition of some of the paratypes also in collections other than those given in this paper. In the distributional data given for each species (before its name in the key, in parentheses), the first locality is that of the primary type (holotype or lectotype), as Country, State, or just Continent. This first locality will coordinate with the place name of the town/village (given in square brackets below the new species name in the key) from where the holotype/lectotype was selected. Distributional localities given are usually only those in India and adjacent countries, unless types were proposed from other countries. In this paper, the letters "m" and "f" are used for male and female, respectively.

The following acronyms are used for States or Union Territories within the Indian Union (I have attempted to include former British Indian Empire territories, and other older names, in parentheses after each, for information), and for collections from where types were examined, and are deposited, by me.

Localities (Acronyms)

India : AH = Andhra Pradesh (including most of

former Hyderabad State, Northern Circars and Yanam), AN = Andaman & Nicobar Islands, AR = Arunachal Pradesh (formerly N.E.F.A., and part of former Assam Province), AS = Assam (now only part of former Assam Province, but still including Cachar), BI = Bihar (including former Chota Nagpur), CH = Chandigarh, DE = Delhi, GO = Goa (former Portuguese colony; Daman & Diu and Dadra & Nagar Haveli are in Gujarat), GU = Gujarat (including former Baroda State, Cutch, Kathiawar, Saurashtra, the Dangs, Daman & Diu and Dadra & Nagar Haveli), HA = Haryana (formerly in Punjab Province), HP = Himachal Pradesh (including Chamba, Kangra, Kulu, Lahaul & Spiti), JK = Jammu & Kashmir (including former Kashmir State, the present "Occupied Kashmir" area, and Ladakh whose Aksai Chin portion is now under Chinese control), KL = Kerala (including former Malabar, Travancore & Cochin and Mahé), KN = Karnataka (including former Mysore State, Coorg and N. & S. Canara), LA = Lakshadweep (formerly Laccadive, Minicoy & Amindivi Islands), MG = Meghalaya (Garo, Khasi & Jaintia Hills), MH = Maharashtra (formerly Bombay and part of the Bombay Presidency, including Khandesh & Konkan), MN = Manipur, MP = Madhya Pradesh (including former Central India, Central Provinces & Berar, Bastar and Gwalior State), MZ = Mizoram (including Lushai Hills), NA = Nagaland (former Naga Hills), OR = Orissa, PO = Pondicherry (former French colony like Karaikal in Tamil Nadu, Mahé in Kerala and Yanam in Andhra Pradesh), PU = Punjab (part of former Punjab Province, still including Patiala), RA = Rajasthan (formerly Rajputana, including Ajmer), SI = Sikkim, TN = Tamil Nadu (formerly Madras and part of the Madras Presidency, including the Carnatic), TR = Tripura (formerly Tipperah), UP = Uttar Pradesh (formerly United Provinces, including Garhwal & Kumaon), WB = West Bengal (formerly part of the Bengal Presidency). I may explain here that what formerly was "Assam" is now divided into the following States : AR, AS, MG, MN, MZ, NA, TR.

The other countries taken as comprising the Indian subcontinent are Bangladesh (formerly East Pakistan, earlier part of the Bengal Presidency), Bhutan, Burma (now Myanmar), Ceylon (now Sri Lanka), Nepal, and Pakistan (formerly West Pakistan, including Bahawalpur, Baluchistan, N.W.F.P., Sind and part of Punjab Province; presently controlling the "Occupied Kashmir" area including Gilgit & Baltistan). The nearby Maldivé Islands and those of the Chagos Archipelago in the Indian Ocean are also included.

Type Depositories (Collections)

AMNH	American Museum of Natural History, New York, U.S.A.
BMNH	British Museum of Natural History (now The Natural History Museum), London, England.
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.
CAS	California Academy of Sciences, San Francisco, California, U.S.A.
CIBCI	Commonwealth Institute of Biological Control, Indian Station, Bangalore, India (now the Biological Control Centre, National Centre for Integrated Pest Management, Indian Council of Agricultural Research).
CNC	Canadian National Collection, Biosystematics Research Centre, Agriculture Canada, Ottawa, Ontario, Canada.
CNM	Colombo National Museum, Department of National Museums, Colombo, Sri Lanka.
KGC	Personal collection of Dr Kumar Ghorpadé, Bangalore, India.
IARI	Indian Agricultural Research Institute, Delhi, India.
TNAU	Tamil Nadu Agricultural University, Coimbatore, India.
USNM	U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A.
UZM	Universitetets Zoologisk Museum, Copenhagen, Denmark.
ZMHU	Zoologisches Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.
ZMUH	Zoological Museum of the University, Helsinki, Finland.

Checklist of the Genera and Species of Indian subcontinent Syrphini (Diptera : Syrphidae)

The genera and species of the tribe Syrphini known from India and adjacent countries (see section on "Localities" on page 2) are listed below, alphabetically. Only the current valid names are given here, based on my research. Synonymy is omitted and will be provided in detail in our forthcoming revision (Ghorpadé & Thompson, in prep.). New taxa are indicated by my name followed by "gen. nov." or "sp. nov." in boldface lettering. Genera are numbered consecutively in Roman numerals and species in Arabic numerals.

- I **AGNISYRPHUS** Ghorpadé, **gen. nov.**
 1. *angara* Ghorpadé, **sp. nov.**
 2. *gressitti* Ghorpadé, **sp. nov.**
- II **ALLOBACCHA** Curran
 3. *amphithoe* (Walker)
 4. *apicalis* (Loew)
 5. *binghami* Ghorpadé, **sp. nov.**
 6. *elegans* (Brunetti)
 7. *fallax* (Austen)
 8. *oldroydi* Ghorpadé, **sp. nov.**
 9. *sapphirina* (Wiedemann)
 10. *triangulifera* (Austen)
- III **ALLOGRAPTA** Osten Sacken
 11. *bouvieri* (Hervé-Bazin)
 12. *dravida* Ghorpadé, **sp. nov.**
 13. *javana* (Wiedemann)
 14. *maculipleura* (Brunetti)

- IV **ASARKINA** Macquart
 15. *ayyari* Ghorpadé, **sp. nov.**
 16. *belli* Ghorpadé, **sp. nov.**
 17. *bhima* Ghorpadé, **sp. nov.**
 18. *hema* Ghorpadé, **sp. nov.**
 19. *incisuralis* (Macquart)
 20. *pitambara* Ghorpadé, **sp. nov.**
 21. *porcina* (Coquillett)
- V **ASIOBACCHA** Virolvitsh
 22. *nubilipennis* (Austen)
- VI **BETASYRPHUS** Matsumura
 23. *aeneifrons* (Brunetti)
 24. *bazini* (Brunetti)
 25. *fletcheri* Ghorpadé, **sp. nov.**
 26. *isaaci* (Bhatia)
 27. *linga* Ghorpadé, **sp. nov.**
- VII **CHRYSOTOXUM** Meigen
 28. *antiquum* Walker
 29. *arcuatum* (Linnaeus)
 30. *baphyrum* Walker
 31. *convexum* Brunetti
 32. *corbetti* Ghorpadé, **sp. nov.**
 33. *draco* Shannon
 34. *fasciolatum* (De Geer)
 35. *intermedium* Meigen
 36. *quadrifasciatum* Brunetti
- VIII **CITROGRAMMA** Vockeroth
 37. *chola* Ghorpadé, **sp. nov.**
 38. *clarum* (Hervé-Bazin)
 39. *citrinum* (Brunetti)
 40. *flavigenum* Wyatt
 41. *henryi* Ghorpadé, **sp. nov.**
- IX **DASYSYRPHUS** Enderlein
 42. *darada* Ghorpadé, **sp. nov.**
 43. *orsua* (Walker)
 44. *pandu* Ghorpadé, **sp. nov.**
 45. *rossi* Ghorpadé, **sp. nov.**
- X **DIDEA** Macquart
 46. *poorva* Ghorpadé, **sp. nov.**
 47. *vockerothi* Ghorpadé, **sp. nov.**
- XI **DIDEOIDES** Brunetti
 48. *kempi* Brunetti
 49. *ovatus* Brunetti
 50. *tigerinus* (Bigot)
 51. *trilineatus* Brunetti
- XII **DIDEOPSIS** Matsumura
 52. *aegrota* (Fabricius)
- XIII **EOSPHAEROPHORIA** Frey
 53. *dentiscutellata* (Keiser)
- XIV **EPISTROPHE** Walker
 54. *aequalis* (Walker)
 55. *carmichaeli* Ghorpadé, **sp. nov.**
 56. *flavopilosa* Ghorpadé, **sp. nov.**
 57. *griseocincta* (Brunetti)
 58. *quinquevittata* (Brunetti)

- XV *EPISYRPHUS* Matsumura
 59. *arcifer* (Sack)
 60. *balteatus* (De Geer)
 61. *viridaureus* (Wiedemann)
- XVI *ERIOZONA* Schiner
 62. *analis* Kertész
- XVII *EUPEODES* Osten Sacken
 63. *confrater* (Wiedemann)
 64. *corollae* (Fabricius)
 65. *latifasciatus* (Macquart)
 66. *nuba* (Wiedemann)
 67. *pseudonitens* (Dušek & Láska)
- XVIII *ISCHIODON* Sack
 68. *scutellaris* (Fabricius)
- XIX *LEUCOZONA* Schiner
 69. *brunettii* Ghorpadé, sp. nov.
 70. *kingdonwardi* Ghorpadé, sp. nov.
 71. *virendra* Ghorpadé, sp. nov.
- XX *MEGASYRPHUS* Dušek & Láska
 72. *himalayensis* Kohli, Kapoor & Gupta
- XXI *MELANGYNA* Verrall
 73. *remota* (Brunetti)
- XXII *MELISCAEVA* Frey
 74. *ceylonica* (Keiser)
 75. *cinctelloides* Ghorpadé, sp. nov.
 76. *darjeelingensis* Datta & Chakraborti
 77. *kusuma* Ghorpadé, sp. nov.
 78. *lefroyi* Ghorpadé, sp. nov.
 79. *magnifica* Ghorpadé, sp. nov.
 80. *malaisei* Ghorpadé, sp. nov.
 81. *mathisi* Ghorpadé, sp. nov.
 82. *strigifrons* (de Meijere)
 83. *tribeni* (Nayar)
- XXIII *PARASYRPHUS* Matsumura
 84. *aeneostoma* Matsumura
 85. *kashmiricus* Ghorpadé, sp. nov.
 86. *sherpa* Ghorpadé, sp. nov.
 87. *thompsoni* Ghorpadé, sp. nov.
- XXIV *RHINOACCHA* de Meijere
 88. *gracilis* de Meijere
 89. *krishna* Ghorpadé, sp. nov.
 90. *peterseni* Ghorpadé, sp. nov.
- XXV *SCAEVA* Fabricius
 91. *albomaculata* (Macquart)
 92. *latimaculata* (Brunetti)
 93. *lunata* (Wiedemann)
 94. *pyrastris* (Linnaeus)
- XXVI *SPHAEROPHORIA* Le Peletier & Serville
 95. *assamensis* Joseph
 96. *bengalensis* Macquart
 97. *indiana* Bigot
 98. *knutsoni* Ghorpadé, sp. nov.
 99. *ladakhensis* Ghorpadé, sp. nov.
 100. *macrogaster* Thomson
 101. *rueppellii* (Wiedemann)

102. *scripta* (Linnaeus)
 103. *viridaenea* Brunetti
 104. *vockerothi* Joseph
- XXVII *SYRPHUS* Fabricius
 105. *dalhousiae* Ghorpadé, sp. nov.
 106. *fulvifacies* Brunetti
 107. *howletti* Ghorpadé, sp. nov.
 108. *ribesii* (Linnaeus)
 109. *torvus* Osten Sacken
 110. *vitripennis* Meigen
- XXVIII *VOCKEROTHIELLA* Ghorpadé, gen. nov.
 111. *laticornis* (Curran)

Key to Genera of Indian subcontinent Syrphini

1. Anterior flat portion of mesopleuron with long fine hairs, at least posterodorsally 2
- Anterior flat portion of mesopleuron bare, with microscopic pubescence only and not with long hairs 6
2. Extreme posterior margin of wing with minute, closely spaced, black, sclerotized dots 3
- Extreme posterior margin of wing without such dots 5
3. Hypopleuron bare below spiracle; metasternum bare; terga pale yellow with black apical fasciae or triangles *MELISCAEVA* Frey
- Hypopleuron haired below spiracle; metasternum and coloration of terga variable 4
4. Metasternum haired; mesonotum anteriorly without collar of longer hairs; subscutellar fringe well developed; abdomen not petiolate, terga 3 & 4 orange-yellow with sub-basal and apical black fasciae *EPISYRPHUS* Matsumura
- Metasternum bare; mesonotum anteriorly with a distinct collar of longer and denser hairs; subscutellar fringe absent or weakly developed; abdomen distinctly petiolate and club-shaped, terga 3 & 4 not coloured as above *ASIOBACCHA* Virolvitsh [One species: *A. nubilipennis* (Austen) - Ceylon; Bangladesh?; Bhutan?; Burma; India: KL, KN, MG, TN, WB; Nepal?; i, iii-xi; m & f]
5. Eye haired or bare; hypopleuron bare; posteromedian apical angle of hind coxa with tuft of strong hairs; abdomen not petiolate *PARASYRPHUS* Matsumura
- Eye bare; hypopleuron haired; hind coxal hair tuft absent; abdomen distinctly petiolate and club-shaped *ALLOBACCHA* Curran (pt)
6. Mesonotum anteriorly with a distinct, complete or incomplete collar of longer hairs 7
- Mesonotum anteriorly without such a collar of hairs 9
7. Hypopleuron bare; hind coxal hair tuft present; wing with broad, dark, transverse vitta in middle which may extend toward wing base, apical third of wing hyaline *DIDEOPSIS* Matsumura [One species: *D. aegrota* (Fabricius) - China; Bangladesh; Bhutan?; Burma?; Ceylon; India: AR, AS, KL, KN, MG, MN, MP, SI, TN, UP, WB; Nepal: i-iii, v-xii; m & f]
- Hypopleuron haired; hind coxal hair tuft absent; wing entirely hyaline or differently, variably, darkened 8

8. Humerus bare; metasternum haired; laterotergite bare; abdomen margined and usually broad, if narrow then terga 2 & 3 not petiolate; lower face produced and oral cavity elongate *ASARKINA* Macquart
- Humerus haired posteriorly; metasternum bare; laterotergite haired; abdomen distinctly petiolate and club-shaped; lower face not produced *ALLOBACCHA* Curran (pt)
9. Abdomen entirely unmargined 10
- Abdomen at least faintly margined on terga 2 to 5 15
10. Upper and lower sternopleural hair patches at least narrowly joined posteriorly; lateral mesonotal margin dark, if yellowish then the demarcation from dark dorsum not distinct; male sternum 9 with posteroventral emargination and a distinct lingula 11
- Sternopleural hair patches distinctly separated posteriorly, or reduced, or even absent; lateral mesonotal margin bright yellow, sharply demarcated from dark dorsum; male sternum 9 without posteroventral emargination or lingula 12
11. Hind coxal hair tuft present; terga 2 to 4 with pairs of well separated yellow, rectangular spots; eye haired
..... *MELANGYNA* Verrall
[One species: *M. remota* (Brunetti) - India: HP, JK, UP; Nepal; Pakistan?; v-vi, ix-x; m & f]
- Hind coxal hair tuft absent; terga 2 to 4 with spots shaped otherwise, or terga 3 & 4 with fasciae; eye bare or haired....
..... *EPISTROPHE* Walker (pt)
12. Wing with alula and anal lobe reduced, narrow; head in male dichoptic; metasternum bare; body hairs reduced or absent 13
- Wing with alula and anal lobe normal; head in male holoptic; metasternum haired or very rarely bare; body hairs not appreciably reduced 14
13. Lower face strongly produced into a snout, tubercle absent, black median vitta present *RHINOACCHA* de Meijere
- Lower face not produced, tubercle present, face entirely yellow or with a black median vitta
..... *EOSPHEROPHORIA* Frey
[One species: *E. dentiscutellata* (Keiser) - Ceylon; x; m]
14. Larger species, with fairly broad abdomen which is usually shorter than wing; subscutellar fringe normal; metasternum haired; tergum 9 of male normal, not wider than abdominal width; male terminalia small
..... *ALLOGRAPTA* Osten Sacken
- Smaller, more slender species, with abdomen (at least in male) cylindrical and elongated, longer than wing; subscutellar fringe absent or present only laterally; metasternum haired or bare; male tergum 9 wider than abdomen, enlarged; male terminalia large, globose
..... *SPHAEROPHORIA* Le Peletier & Serville
15. Metasternum haired 16
- Metasternum bare 20
16. Hind coxal hair tuft absent; eye bare or very rarely sparsely haired 17
- Hind coxal hair tuft present; eye distinctly haired, though sometimes sparsely so 18
17. Sternopleural hair patches joined posteriorly; lateral mesonotal margin bright yellow, distinctly demarcated from darker dorsum; pleuron with bright yellow areas
..... *CITROGRAMMA* Vockeroth
- Sternopleural hair patches distinctly separated posteriorly; lateral mesonotal margin dark, if yellowish then dull and not distinctly demarcated from darker dorsum; pleuron dark, without any yellow areas *EUPEODES* Osten Sacken
18. Hypopleuron haired below spiracle; lower lobe of squama with a few fine erect hairs on upper surface; sternopleural hair patches separated posteriorly; wing vein R_{4+5} strongly dipped into cell R_{4+5} *DIDEA* Macquart
- Hypopleuron bare below spiracle; lower lobe of squama bare above; sternopleural hair patches joined, or rarely separated, posteriorly; wing vein R_{4+5} dipped into cell R_{4+5} , or straight 19
19. Face with black median vitta; wing vein R_{4+5} distinctly dipped into cell R_{4+5} ; male sternum 9 without lingula
..... *MEGASYRPHUS* Dušek & Láska
[One species: *M. himalayensis* Kohli, Kapoor & Gupta¹ - India: HP; x-xi; f]
- Face entirely yellow; wing vein R_{4+5} straight or nearly so; male sternum 9 with a distinct lingula
..... *DIDEOIDES* Brunetti
20. Hind coxal hair tuft present 21
- Hind coxal hair tuft absent 22
21. Eye densely haired; sternopleural hair patches separated posteriorly; tergum 2 with narrow yellow or grey fascia which may be interrupted in centre in some specimens
..... *BETASYRPHUS* Matsumura
- Eye bare or very rarely haired; sternopleural hair patches joined posteriorly; tergum 2 with a pair of well separated yellow spots *SYRPHUS* Fabricius
22. Lower lobe of squama with some long, coarse, erect pale hairs above on posteromedian portion; face in lateral aspect distinctive, receding from antennal prominence to oral cavity; sternopleural hair patches separated posteriorly; wing membrane almost wholly microtrichose; pleuron extensively yellow pollinose; terminalia of male with distinctly shaped paramere (Type-species: *Asarkina laticornis* Curran, 1928: 235) *VOCKEROTHIELLA* Ghorpadé, gen. nov.
[One species: *V. laticornis* (Curran) - Thailand; Bhutan?; Burma?; India?; Nepal; Malaya; ii-iv, vii, xi-xii; m & f]
- Lower lobe of squama bare above; face in profile not receding below to oral cavity, even if frons is swollen as in species of *Scaeva* 23
23. Eye bare; antenna with segment 3 only two times as long as broad; abdomen flat or slightly convex dorsally, slightly but distinctly margined 24
- Eye usually haired, at least sparsely, if bare, then antenna correct, segment 3 at least three times as long as broad;

¹Described from 2 females taken at Kalatop (above Dalhousie) and at Carigano, both in Himachal Pradesh, by Kohli *et al.* (1988: 123). I had proposed "*deodarae*" (Ghorpadé, 1981a), for 29 females that I had collected at Dalhousie in October 1974, which I now consider conspecific with *himalayensis*. Ho (1987: 195, 203, Fig. 8) described *chinensis* based on 1 male and 4 females collected in April and May in Tibet; it appears to be another species of *Megasyrphus*, not conspecific with *himalayensis*.

- abdomen strongly convex dorsally, very strongly margined 26
24. Lateral mesonotal margin bright yellow, distinctly demarcated from dark dorsum; sternopleural hair patches separated posteriorly *ISCHIODON* Sack [One species: *I. scutellaris* (Fabricius) - India: TN, AH, AR, AS, BI, DE, GU, HA, JK, KL, KN, MH, MN, MP, OR, PO, PU, RA, UP, WB; Afghanistan; Bangladesh ?; Bhutan ?; Burma; Ceylon; Nepal; Pakistan; i-xii; m & f]
- Lateral mesonotal margin dark, undifferentiated from dorsum; sternopleural hair patches joined posteriorly 25
25. Wing microtrichia well developed all over, even in costal and basal cells; abdomen distinctly margined, dorsum flat or only weakly convex; male sternum 9 without lingula; eye bare (Type-species: *Agnisyrphus angara* Ghorpadé, sp. nov.) ..
..... *AGNISYRPHUS* Ghorpadé, gen. nov.
- Wing microtrichia appreciably reduced, especially on basal one-half in costal and basal cells; abdomen weakly margined, on some terga only, if at all, dorsum noticeably convex, not flat; male sternum 9 with lingula; eye bare or haired
..... *EPISTROPHE* Walker (pt)
26. Wing with brownish anteromedian spot; tergum 2 entirely black; hairs on lateral margins of abdomen thick and suberect; male sternum 9 without lingula; generally *Bombus*-like, densely hairy flies *ERIOZONA* Schiner [One species: *E. analis* Kertész - India: SI, UP; Bhutan?; Burma?; Nepal; Tibet?; vii-viii; m & f]
- Wing entirely hyaline, or only costal margin coloured, especially distally; tergum 2 not entirely black; hairs on lateral abdominal margins normal, not as above; male sternum 9 with lingula; flies not *Bombus*-like 27
27. Wing microtrichia greatly reduced, basal one-half and alula almost bare; wing vein R_{4+5} distinctly though very weakly dipped into cell R_{4+5} ; terga 3 & 4 with a pair of oblique or lunulate pale spots; male frons strongly swollen, eye with distinctly larger facets on upper one-half
..... *SCAEVA* Fabricius
- Wing microtrichia well developed, if partly bare then other characters not as above (except that some species of *Dasysyrphus* have oblique or lunulate pale spots on terga 2 to 4); wing vein R_{4+5} usually straight (in some *Chrysotoxum* species distinctly dipped into cell R_{4+5}); male not with frons strongly swollen nor with upper eye facets larger (except in some *Dasysyrphus* species) 28
28. Antenna porrect, elongate, segment 3 at least three times as long as broad; lateral mesonotal margin totally or partially and distinctly bright yellow; wing vein R_{4+5} distinctly dipped into cell R_{4+5} ; abdomen strongly convex dorsally, very strongly margined *CHRYSOTOXUM* Meigen
- Antenna drooping, not porrect, segment 3 less than three times as long as broad; lateral mesonotal margin dark, concolorous with rest of mesonotum, not bright yellow; wing vein R_{4+5} almost straight, not dipped distinctly into cell R_{4+5} ; abdomen not strongly convex dorsally nor very strongly margined 29
29. Face wholly yellow, or black with white pollen on sides; tergum 2 entirely (or almost) yellow, if black with yellow spots then these spots confluent with lateral abdominal margins *LEUCOZONA* Schiner²

- Face yellow with a dark median vitta; tergum 2 black, with yellow spots, not confluent with lateral abdominal margins, but well separated from them
..... *DASYSYRPHUS* Enderlein

Keys to Species of Indian subcontinent Genera

The following keys separate known species of each of the 20 polytypic genera of the tribe Syrphini in the Indian subcontinent. The 8 genera which are monotypic in this area have been keyed in the preceding generic key, and the single species of each treated there.

Key to species of *AGNISYRPHUS* Ghorpadé, gen. nov.

1. Tergum 4 reddish; antenna with segment 3 yellow, very slightly pale brown dorsally; tibia 3 yellow, with indistinct brownish postmedian annulus (India: UP; v; m)
..... *angara* Ghorpadé, sp. nov. [Holotype male, Mussoorie, 22.v.1974 (*Ghorpadé*) - KGC. Paratype male, Naini Hills - BMNH]
- Tergum 4 yellow with black subposterior fascia; antenna with segment 3 black, orange-yellow ventrobasally; tibia 3 brownish black except for extreme yellow base (Thailand; Bhutan?; Burma?; India: AR, WB; Nepal?; vii-viii, x-xi; m & f)
..... *gressitti* Ghorpadé, sp. nov. [Holotype male, Doi Pui Mt summit, 28.vii.1979 (*Petersen*) -UZM. Paratypes m & f, Doi Pui Mt summit, Cha Che in Delai Valley, Darjeeling to Tiger Hill; Ghoom to Tiger Hill - BMNH, BPBM, KGC]

Key to species of *ALLOBACCHA* Curran

1. Scutellum black; pleurotergite haired; pleuron black, at most with posterior mesopleuron yellow; prescutum, between yellow humerus and notopleural callus, black 2
- Scutellum at least partly yellow; pleurotergite bare; pleuron with yellow markings also on sternopleuron and pleurotergite (even on barrette in some species); humerus, notopleural callus and lateral prescutum between them yellow 4
2. Humerus haired; face with at least lateral areas partly yellow; anterior mesopleuron bare; posterior mesopleuron at least partly yellow pollinose; alula medium in size with posterior margin straight 3
- Humerus bare; face black and at most sparsely white pollinose on lateral areas; anterior mesopleuron haired; pleuron entirely black; alula large with posterior margin weakly rounded, not straight ('Ind. Or.'; Ceylon; India: DE, GU, KN, MP, RA, TN; Pakistan?; i-xii; m & f) *sapphirina* (Wiedemann)
3. Wing with apical dark spot wider than marginal cell; female frons with pale pollinose spots subtriangular, shorter, placed at some distance away from anterior ocellus; male with pale

²*Ischyrosyrphus* Bigot, 1882 [type-species: *sivae* Bigot from 'India'; male type specimen not traceable, translation of description in Brunetti (1923: 66) unrecognizable, so species here ignored, considered a *nomen nudum*] is here treated as congeneric with *Leucozona* Schiner, 1860 (see also comments by Vockeroth, 1969: 78-80). Chris Thompson and I are preparing a review of the world species of *Leucozona*, including those now placed in *Ischyrosyrphus*.

- hairs on frontal triangle long, longer than black hairs on lunular callus; yellow markings on posterior mesopleuron and notopleuron dull yellow, not contrasting sharply with black areas of pleuron and mesonotum (sternopleuron black, at most with some short white hairs on upper margin); dull yellow of notopleuron rarely extending above on prescutum (Japan; Bangladesh ?; Bhutan?; Burma; Ceylon; India: AS, BI, GO, HP, KL, KN, MG, MZ, TN, UP, WB; Nepal; i-xi; m & f) *apicalis* (Loew)
- Wing with apical dark spot narrower than marginal cell, appearing as an extension of stigma; female frons with pale pollinose spots distinctly elongate, almost reaching anterior ocellus; male with pale hairs on frontal triangle shorter, at most as long as black hairs on lunular callus; yellow markings on posterior mesopleuron and notopleuron very bright, contrasting sharply with black areas of pleuron and mesonotum (upper sternopleuron usually also bright yellow); bright yellow of notopleuron extending distinctly above on prescutum (Ceylon; India ?; ii-iii, v-vii, x-xi; m & f) *fallax* (Austen)
4. Postmetacoxal bridge present; barrette black and bare; scutellum black at least on posterior two-third; alula very weakly developed 5
- Postmetacoxal bridge absent; barrette yellow and haired; scutellum yellow with black median marking; alula fairly well developed 7
5. Face entirely yellow; male sternum 4 with posteromedian projection fairly long and medially emarginate; most similar to *elegans* and *triangulifera* but with following differences: anterior yellow margin of scutellum more extensive (almost one-third area), hind tibia equally yellow and black (India: SI; ix ?; m) *binghami* Ghorpadé, sp. nov. [Holotype male, Sikkim (*Bingham*) - ZMHU]
- Face yellow, with a dark median vitta 6
6. Tergum 3 with posterior margin broadly black; tergum 2 at most with indistinct subposterior yellow fascia; male sternum 4 with posteromedian projection long, narrow and truncate; tibia 1 yellow with median darkening (India: WB, KN; Bhutan?; Burma ?; Nepal; i-ii, iii ?, vii-ix, xi-xii; m & f) *elegans* (Brunetti)
- Tergum 3 with posterior margin yellow or very narrowly black; tergum 2 with distinct subposterior yellow fascia; male sternum 4 with posteromedian projection short, wide and truncate; tibia 1 all yellow (Ceylon; vi, ix; m & f) *triangulifera* (Austen)
7. Wing hyaline except for dark costal margin; prescutum with lateral yellow margins complete; scutellum yellow with dark median area; tergum 2 with lateral hairs short; terga 3 & 4 with hairs on disc yellow (Burma; Bangladesh?; Bhutan?; Ceylon; India: AS, KL, KN, MG, MN, MZ, WB; Nepal?; i-iv, viii, x-xii; m & f) *amphithoe* (Walker)
- Wing with a broad dark median vitta; prescutum with lateral yellow margins incomplete in centre; scutellum black with yellow anterior margin; tergum 2 with lateral hairs long, longer than width of tergum; terga 3 & 4 with hairs on disc black (India: KL; Ceylon; ix, xi ?; m & f) *oldroydi* Ghorpadé, sp. nov. [Holotype male, Nadungayam, 16-22. ix. 1938 (*B.M.-C.M. Expdn to S. India*) - BMNH. Paratype female, Ceylon - USNM]

Key to species of *ALLOGRAPTA* Osten Sacken

1. Barrette black, anterior mesopleuron black; scutellum with a dark median spot; alula almost entirely microtrichose; terga 2 to 4 with yellow spots or fasciae not reaching lateral margins; sterna with black median vittae (India: TN, KL; iii-v, x; m) *bouvieri* (Hervé-Bazin)
- Barrette yellow; anterior mesopleuron yellow ventrally; scutellum yellow or with dark median spot; alula bare at least on basal one-fifth; terga 2 to 4 with spots or fasciae confluent with lateral margins; sterna wholly yellow 2
2. Femur 1 with pile all yellow (except for some black hairs on extreme apex in some specimens); tibia 3 black with clear, distinct, median yellow annulus; terga 3 & 4 with yellow fasciae reaching lateral margins at least in their one-half width (Java; Bangladesh ?; Bhutan?; Burma; Ceylon; India: AH, AR, AS, BI, DE, KL, KN, MG, MN, MP, OR, SI, TN, UP, WB; Nepal; i-xii; m & f) *javana* (Wiedemann)³
- Femur 1 with black hairs at least on apical one-third; tibia 3 black, median yellow annulus indistinct or absent; terga 3 & 4 with yellow fasciae reaching lateral margins very narrowly 3
3. Mesonotum with hairs all golden yellow; alula bare only on basal one-third; tergum 2 with yellow spots reaching lateral margins only at a point; tergum 5 with arrowhead-shaped pair of yellow spots (India: KN; i, iv, x-xii; m) *dravida* Ghorpadé, sp. nov. [Holotype male, Bangalore, 15.x.1978 (*Ghorpadé*) - KGC. Paratype males, Bangalore, Kemmangundi - KGC]
- Mesonotum with black hairs on posterior one-half; alula bare on basal one-half; tergum 2 with yellow spots reaching lateral margins more widely; tergum 5 with a pair of oblique, elongate oval yellow spots (India: AR, AS; Bhutan?; Burma; iii, viii, xii; m & f) *maculipleura* (Brunetti)

Key to species of *ASARKINA* Macquart

1. Hairs on femur 1 and scutellum all black 2
- Hairs on femur 1 and scutellum yellow, or yellow and black 3
2. Lower face distinctly produced ventrally, upper margin almost at 90° to infra-antennal area, tubercle not distinct but merged with upper margin of oral cavity; hairs on face yellow; antennal segment 3 elongate, two times as long as wide; femur 3 with yellow and black hairs (India: TN, KL, KN; Ceylon; ii, iv, ix-xi; m & f) *ayyari* Ghorpadé, sp. nov. [Holotype male, Yercaud, 19.ix.1978 (*Ghorpadé*) - KGC. Paratypes m & f, Yercaud, Anaimalai Hills, Ootacamund, Meppadi, Santhanatod, Wynaad, Mudigere, Nandi Hills; Kanda-ela Reservoir, Labugama Reservoir jungle, 4km NE. Laksapana, N. Pundaluoya, Rangala, 'Ceylon' - CNM, IARI, KGC, TNAU, USNM, ZMHU]
- Lower face weakly produced, tubercle distinct; hairs on face black; antennal segment 3 only one and one-half times as long as wide; femur 3 with only black hairs (India: WB; Bhutan?; Burma?; Nepal; Thailand; vii-viii, x; m & f) *bhima* Ghorpadé, sp. nov.

³The spelling of the species name is here retained as *javana*, as it has been consistently spelt by most authors, since its description in 1824 from the Indonesian island of Java.

- [Holotype male, Debrepani, 22.x.1961 (*Ross & Cavagnaro*) - CAS. Paratype females, Debrepani. Darjeeling; Kathmandu; Doi Inthanon Range - CAS, CNC, KGC, UZM]
3. Hairs on face and femur 1 yellow and black; hairs on femur 3 black; sterna with some black hairs (India: KN, AH; Ceylon; iv-v. viii-ix, xi; m & f) *belli* Ghorpadé, sp. nov. [Holotype male, 35km W. Jog Falls, 18.xi.1976 (*Ghorpadé*) - KGC. Paratypes m & f, Bellahunsi to Hampasagaram Road, Nagody, Amalapuram; Kanneliya Forest - TNAU, USNM]
 - Hairs on face and femur 1 all yellow; hairs on femur 3 yellow, or yellow and black; sterna with all yellow hairs 4
 4. Anterior black fasciae on terga 3 to 5 absent; tergum 2 without median black vitta 5
 - Anterior black fasciae on terga 3 to 5 present, even if somewhat pale and indistinct; tergum 2 with median black vitta 6
 5. Male with frontal hairs all yellow, in female upper frons black haired; tergum 3 in male with only yellow hairs, in female with yellow and black hairs; femur 3 with only yellow hairs (China; Bangladesh; Bhutan?; Burma?; Ceylon; India: AH, AS, BI, KL, KN, PO, TN, UP, WB; Nepal: i-v, vii-xii; m & f) *incisuralis* (Macquart)
 - Frontal hairs in male and in female all black; tergum 3 in male with yellow and black hairs, in female with only black hairs; femur 3 mostly with yellow hairs, but with some black hairs distally (India: KN; Ceylon; i, iii, x-xi; m & f) *pitambara* Ghorpadé, sp. nov. [Holotype male, Jog Falls, 17.xi.1976 (*Ghorpadé*) - KGC. Paratypes m & f, Gilimale, Kanneliya, Peradeniya, Trincomalee - BMNH, USNM]
 6. Tergum 1 black medially; tergum 2 with black fascia not confluent with lateral margins; lower face distinctly produced forward, tubercle and oral cavity almost fused; male with frontal hairs long, longer than antennal segments 1+2 together (Japan; Bhutan?; Burma; India: AS, MG, SI, UP, WB; Nepal: iii-v, vii-x; m & f) *porcina* (Coquillett)
 - Tergum 1 all yellow; tergum 2 with black fascia confluent with lateral margins; lower face normal, tubercle distinct from oral cavity; male with frontal hairs shorter than antennal segments 1+2 together (India: KN, KL; iii, ix; m & f) *hema* Ghorpadé, sp. nov. [Holotype male, Bannerghatta Park, 12.ix.1976 (*Ghorpadé*) - KGC. Paratypes m & f, Bannerghatta Park, Thekkady, Walayar Forest, 'India' - CNC, KGC]
- broadly confluent with lateral margins (India: UP, BI, SI, WB; Bhutan?; Nepal; i-iii, vii, x-xii; m & f) *bazini* (Brunetti)
3. Lower lobe of squama without erect hairs on upper surface; yellow or grey fascia on tergum 2 confluent with lateral margins; male with suture of eyes longer than length of ocellar triangle which is as long as broad, anterior angle of eye junction less than 90°; female with hairs on face black except for white hairs on lower margin around oral cavity below tubercle (India: BI, AS, HP, JK, MG, PU, UP, WB; Bangladesh?; Bhutan?; Burma; Nepal?; Pakistan?; i-iv, vii-x, xii; m & f) *isaaci* (Bhatia) Lower lobe of squama usually with erect hairs, but without these in some specimens of *fletcheri*; yellow or grey fascia on tergum 2 not confluent with lateral margins; male with suture of eyes equal to ocellar triangle which is longer than broad, anterior angle of eye junction greater than 90°; female with hairs on face mostly white but with some black hairs below antennal bases and around tubercle of face in some specimens 4
 4. Antennal segment 3 orangeish ventrobasally; tibiae 1 & 2 entirely yellow with no trace of a dark median annulus; erect hairs on lower squamal lobe present (India: AR, AS, SI, UP, WB; Bhutan?; Burma?; Nepal?; ii-v, vii, ix-xi; m & f) ... *aeneifrons* (Brunetti)
 - Antenna almost entirely black; tibiae 1 & 2 with distinct, though narrow, dark median annulus; erect hairs on lower squamal lobe usually absent, in some specimens a few present (India: TN, KL; Ceylon; i-v, viii-xi; m & f) *fletcheri* Ghorpadé, sp. nov. [Holotype male, Ootacamund, 23.x.1975 (*Ghorpadé*) - KGC. Paratypes m & f, Kallar, Kodaikanal, Ootacamund, Shembaganur, Yercaud, Kaikatty, Manantoddy, Munnar; Namunukuli, 'Ceylon' - AMNH, BMNH, CAS, KGC, TNAU]

Key to species of *CHRYSOTOXUM* Meigen

Key to species of *BETASYRPHUS* Matsumura

1. Tergum 2 with broad orange-yellow fascia which is confluent with anterior margin and about two times as broad as similar fascia on tergum 3 2
 - Terga 2 & 3 with subequal orange-yellow or greyish fasciae which are not confluent with anterior margins 3
 2. Male terminalia very large, surstyli asymmetrical; female sterna equally yellow and black; black fascia on sternum 2 separated narrowly from lateral margins (India: KN, KL, TN; i, iv, ix, xii; m & f) *linga* Ghorpadé, sp. nov. [Holotype male, Nandi Hills, 3.xii.1973 (*Ghorpadé*) - KGC. Paratypes m & f, Nandi Hills, Bangalore, Kaikatty, Yercaud - CIBCI, KGC]
 - Male terminalia normal, small, surstyli symmetrical; female sterna more black than yellow; black fascia on sternum 2
1. Mesonotum with lateral yellow vitta complete; facial black vitta absent or weak and indistinct, present only in a few specimens; black genal vitta absent; sternum 2 yellow with a complete or interrupted black fascia 2
 - Mesonotum with lateral yellow vitta incomplete, facial black vitta present, distinct; black genal vitta present; sternum 2 black, or black with yellow spots on anterior and/or posterior margins 3
 2. Terga 2 to 4 with posterolateral corners produced into spines (China; Burma; vi-vii, ix; m & f) *draco* Shannon
 - Terga 2 to 4 with their posterolateral corners normal, not produced into spines (India: WB, HP, KN, TN, UP; Bhutan?; Burma; Ceylon; Nepal; i-iii, v, vii-xii; m & f) *baphyrum* Walker
 3. Sternum 2 black 4
 - Sternum 2 black with yellow spots on anterior and/or posterior margins 6
 4. Mesonotum with median white pollinose vitta complete (India: MG; iii-iv; f) *quadrifasciatum* Brunetti
 - Mesonotum with median white pollinose vitta incomplete ... 5
 5. Abdomen with lateral margin black; antennal segment 3 longer than segments 1+2 together ('India'; Bhutan?; Burma;

- India: HP, UP, WB; Nepal ?; iv-x; m & f) *antiquum* Walker (pt)
 - Abdomen with lateral margin yellow and black; antennal segment 3 shorter than segments 1+2 together (India: UP; Bhutan?; Nepal ?; Tibet: vi; m & f) *convexum* Brunetti
6. Scutellum black with anterior margin yellow; antennal segment 3 shorter than segments 1+2 together (Europe: India: JK, UP; Nepal?; Pakistan ?; vi, viii; m & f) *fasciolatum* (De Geer)
 - Scutellum yellow, medially translucent; antennal segment 3 longer than or equal to segments 1+2 together 7
7. Abdomen with lateral margin black; sternum 2 with posterior margin black 8
 - Abdomen with lateral margin yellow and black; sternum 2 with posterior margin at least partly yellow 9
8. Femora yellow with basal one-fourth, at least, black; scutellum yellow, at most translucent in centre *antiquum* Walker (pt)
 - Femora entirely yellow; scutellum yellow with a distinct black median spot (Europe: India: BI; Nepal?; Pakistan ?; v; m & f) *arcuatum* (Linnaeus)
9. Tergum 2 with posterior margin black; sternum 2 with anteromedian yellow spot, posterolateral corners yellow (Europe: India: HP, JK; Pakistan; vii; m & f) *intermedium* Meigen
 - Tergum 2 posteromedially brownish yellow or with narrow posterior margin brownish yellow; sternum 2 anteriorly with a pair of large yellow spots, with posterior margin narrowly yellow (India: UP; viii; m & f) *corbetti* Ghorpadé, sp. nov. [Holotype male, Mussoorie, 3-14.viii.1978 (*Copenhagen Zool. Mus. Expdn*) - UZM. Paratype female, Mussoorie - UZM]

Key to species of *CITROGRAMMA* Vockeroth⁴

1. Face with posteroventral area contiguous to gena and oral margin black; femora 1 & 2 yellow with basal one-third black; femur 3 almost entirely black, except for extreme yellowish apex in some specimens (Ceylon; i-ii, iv-vii, ix-x, xii; m & f) *henryi* Ghorpadé, sp. nov. [Holotype male, Kanda-ela, 2.vi.1975 (*Wood & Petty*) - USNM. Paratypes m & f, Kanda-ela, Emelina, Hakgala Sanctuary, Horton Plains, Mt Pidurutalagala, Nuwara Eliya, Ohiya, Rangala, Strasby Estate nr Upcot, - BMNH, CNC, CNM, USNM]
 - Face entirely yellow; femora 1 & 2 entirely yellow; femur 3 black, with at least basal one-third yellow 2
2. Male tergum 3 with yellow fascia markedly emarginate posteriorly and distinctly narrowing to lateral margins (some specimens have the fascia divided in centre); female tergum 4 with yellow fascia broadly emarginate posteriorly, narrowing to lateral margins (India: KN, KL, TN; i, iii-iv, vii, x-xi; m & f) *chola* Ghorpadé, sp. nov. [Holotype male, Nandi Hills, 27.vii.1975 (*Ghorpadé*) - KGC. Paratypes m & f, Nandi Hills, Sidapur, Kaikatty, 12km N. Munnar, Kodaikanal, Ootacamund - AMNH, CAS, CNC, KGC, IARI]
 - Male tergum 3 with subparallel yellow fascia, weakly emarginate posteriorly and only very slightly narrowing to lateral margins; female tergum 4 with subparallel yellow fascia, widening to lateral margins 3

3. Posterior mesopleuron yellow with anterior one-third to one-half black; hind tibia entirely black; male frons with triangular brownish yellow to brown supra-lunular spot; female tergum 2 with yellow spots distinct (India: AS, MG, WB; Bangladesh?; Bhutan ?; Burma?; Nepal ?; v, vii-viii, xii; m & f) *citrinum* (Brunetti)
 - Posterior mesopleuron and pteropleuron entirely yellow; hind tibia with noticeable yellowish median annulus; male frons and lunule entirely yellow; female tergum 2 with yellow spots confluent in centre (Laos; Bangladesh ?; Bhutan ?; Burma?; India: MG, WB; Nepal; vii-viii; m & f) *clarum* (Hervé-Bazin)

Key to species of *DASYSYRPHUS* Enderlein

1. Frons with white hairs; femora 1 & 2 entirely yellow (India: JK; vi; m) *pandu* Ghorpadé, sp. nov. [Holotype male, Leh, 22.vi.1973 (*Gupta*) - KGC]
 - Frons with black hairs; femora 1 & 2 yellow with basal one-half black 2
2. Hind tibia black on basal one-half or more; gena blackish; spots on terga 3 & 4 distinct; no pollinose mesonotal vittae (India: JK; vi; m) *darada* Ghorpadé, sp. nov. [Holotype male, Drass, 12.vi.1973 (*Khanna*) - KGC]
 - Hind tibia yellow on basal one-half; gena yellow; spots on terga 3 & 4 usually confluent in centre and forming a fascia, rarely narrowly distinct as a pair of spots; pollinose mesonotal vittae present 3
3. Tergum 5 yellow only on posterior margin; black facial vitta not reaching antennal bases; femur 1 yellow haired ('E. Indies': Bhutan?; Burma?; India: HP, JK, UP, WB; Nepal ?; Pakistan ?; iii-v, vii-x, xii; m & f) *orsua* (Walker)
 - Tergum 5 yellow on posterior and lateral margins; black facial vitta reaching antennal bases; femur 1 with mixed black and yellow hairs apically (India: KL, TN; iii-iv; m & f) *rossi* Ghorpadé, sp. nov. [Holotype male, 12km NE. Munnar, 20.iii.1962 (*Ross & Cavagnaro*) - CAS. Paratype female, Lovedale in Ootacamund - KGC]

⁴*Citrogramma flavigenum* Wyatt (1991: 159, Figs 5 & 16) will key out to *chola* Ghorpadé, sp. nov., but differs as follows: Its femur 3 is entirely black (as in *henryi* Ghorpadé, sp. nov., which could be its sister-species), the facial tubercle is narrowly brown, and femora 1 & 2 are black basally. The mesonotal hairs of *flavigenum* are described as 'pile mostly black', whereas those of *chola* are equally black and yellow. 'The almost uniformly brown dusted scutal disc' in *flavigenum* is dusted bluish in *chola*. *Citrogramma flavigenum* Wyatt was based on a unique male holotype from Kodaikanal (India: TN), taken on 23.iii.1936 by the British Museum & Colombo Museum joint Expedition to south India, and deposited in the BMNH. I do not have any specimens of *Citrogramma* that conform to the diagnostic characters of *flavigenum*, though specimens of *chola* (Wyatt's 'Sp. A') possess metasternal hairs and the metasternum is not 'bare' as stated in his key couplet no. 10 (Wyatt, 1991: 157). Wyatt proposed the name *Citrogramma flavigena*, but the correct spelling of the species name is *flavigenum*, conforming to the gender of the genus name.

Key to species of *DIDEA* Macquart

1. Face yellow with a narrow black median vitta; scutellum with only yellow hairs; tibia 3 black with basal one-third yellow; sternum 4 black (India: JK; viii-ix; m)
..... *vockerothi* Ghorpadé, sp. nov.
[Holotype male, Gulmarg, 17.viii.-5.ix.1978 (*Copenhagen Zool. Mus. Expan.*) - UZM]
- Face entirely yellow; scutellum mostly with black hairs; tibia 3 entirely black; sternum 4 black with anterior one-half yellow (Burma; China; India: MG; iv-v, x; m & f)
..... *poorva* Ghorpadé, sp. nov.
[Holotype male, Kambaiti, 29.v.1934 (*Malaise*) - ZMUH. Paratypes m & f, Kambaiti, Chinking Hina, Shillong - IARI, UZM, ZMUH]

Key to species of *DIDEOIDES* Brunetti

1. Femora 1 to 3 almost entirely yellow; tergum 1 yellow laterally, terga 2 to 4 with very broad yellow fasciae, posterior tergal margins yellow, at least in centre ('India'; Burma; India: MG; Thailand; iii, v; m & f) *tigerinus* (Bigot)
- Femora 1 to 3 yellow, with at least basal one-fourth to one-third black; tergum 1 black, terga 2 to 4 black, with pairs of yellow spots, or with not very broad yellow fasciae 2
2. Abdominal terga mostly black; tergum 3 black or with a pair of yellow spots which are always smaller than those on tergum 2, with posterior margin black; terga 4 & 5 entirely black or with only extreme posterior margin of tergum 5 yellowish (India: MG, AR, SI, WB; Bangladesh ?; Bhutan?; Burma; Nepal; i, iii, v, viii, ix-xi; m & f) *kempi* Brunetti
- Abdominal terga with several yellow markings; terga 3 & 4 with yellow fasciae; tergum 5 mostly yellow 3
3. Femur 3 almost entirely, or at least basal two-third, black; tergum 2 entirely black, or with a pair of small yellow spots; sternum 2 black or with anterior and posterior margins narrowly yellow; sterna 3 & 4 black, each with a pair of large yellow spots on posterior margins (Burma; Bhutan?; India: AR; iii-iv, xi; m & f) *trilineatus* Brunetti
- Femur 3 yellow with basal one-half to two-third black; tergum 2 with a pair of large yellow spots which are narrowly separated in centre; sterna 2 & 3 black with anterior and posterior margins yellow; sternum 4 black (India: SI, MG, WB; Bhutan?; Nepal ?; viii; m & f) *ovatus* Brunetti

Key to species of *EPISTROPHE* Walker

1. Femur 3 (especially ventrally) and tibia 3 (especially dorsally) with a fairly dense black 'brush' of long hairs; tergum 1 almost entirely yellowish white ('E. Indies'; Bhutan?; Burma; India: HP, UP; Nepal ?; iii, vi-x; m & f)
..... *aequalis* (Walker)
- Femur 3 and tibia 3 without a 'brush' of hairs; tergum 1 at least with a pair of posteromedian brownish black spots 2
2. Eye haired 3
- Eye bare 4
3. Scutellum mostly with black hairs but with some yellow hairs on margins; tergum 1 mostly black, with only lateral margins yellowish; tergum 2 with posterior margin almost entirely black (India: UP, JK, WB; Bhutan ?; Burma; Nepal; iv-vi, x; m & f) *griseocincta* (Brunetti)
- Scutellum only with yellow hairs; tergum 1 mostly yellow with a brownish black spot in the centre of each side; tergum

- 2 with posterior margin entirely yellow (Burma; v; f)
..... *flavopilosa* Ghorpadé, sp. nov.
[Holotype female, Kambaiti, 24.v.1934 (*Malaise*) - CNC]
4. Femur 3 yellow with apical one-half black; femora 1 & 2 yellow or very faintly brownish black on extreme bases; tergum 2 with anterior one-half or more entirely yellow except for a brownish black median vitta in some specimens (India : WB, MG; Bhutan?; Nepal; iv-v, vii, x; m & f)
..... *quinquevittata* (Brunetti)
- Femur 3 yellow with basal three-fourth black; femora 1 & 2 yellow with basal one-third or more black; tergum 2 with anterior one-half black except for yellow lateral margins (India : WB; x; f) *carmichaeli* Ghorpadé, sp. nov.
[Holotype female, Algarah nr Kalimpong, 27.x.1981 (*Ghorpadé*) - KGC. Paratype female, Algarah - KGC]

Key to species of *EPISYRPHUS* Matsumura

1. Anterior mesonotal collar of longer and denser hairs present; terga 2 & 4 with black median vitta; frons with three black spots above antennae (Formosa; Bhutan?; Burma?; Ceylon; India ?; Nepal; ix; m & f) *arcifer* (Sack)
- Anterior mesonotal collar of hairs absent; terga 2 & 4 without black median vitta; frons only with two black spots above antennae 2
2. Sterna each with a black spot in centre, or immaculate (Europe; India: HP, JK, PU, UP; Nepal ?; Pakistan; ii-x; m & f) *balteatus* (De Geer)
- Sterna 2 & 3, at least, with complete or incomplete black subposterior fasciae (Java; Bangladesh; Bhutan ?; Burma ?; Ceylon; India : AR, AS, BI, DE, GU, HA, HP, KL, KN, MG, MN, MP, PU, SI, TN, UP, WB; Nepal; Pakistan; i-xii; m & f) *viridaureus* (Wiedemann)

Key to species of *EUPEODES* Osten Sacken

1. Alula entirely microtrichose 2
- Alula basomedially bare 3
2. Lunule yellow; scutellum with only yellow hairs or with a few black hairs in centre; male with occipital fringe of hairs on dorsal one-fourth entirely yellow; female with dorsal one-half of frons black, without dust spots, and with sternum 5 entirely yellow (Europe; Afghanistan; India: HP, JK; Nepal; Pakistan?; v, viii-x; m & f) *latifasciatus* (Macquart)
- Lunule yellow, with brownish spots above antennal bases; scutellum with black hairs except along margins; male with occipital fringe of hairs on dorsal one-fourth yellow, with a row of black hairs; female with dorsal two-third or more of frons black, with dust spots, and with sternum 5 yellow with a median black spot (Afghanistan; Bhutan; Burma ?; India : HP, JK, PU, UP, WB; Nepal ?; Pakistan : i-ii, iv, vi-x, xii; m & f) *pseudonitens* (Dušek & Láska)⁵

⁵ Pavel Láska informed me (*in litt.*) that *pseudonitens* is probably a synonym of *latilunulatus* Collin, and Chris Thompson tells me that Yoshiro Ikezaki considers it a synonym of *frequens* Matsumura, which latter is the oldest available name for this species of *Eupeodes*. However, until I am able to examine specimens of *frequens* (type-locality: Japan), I prefer to use *pseudonitens* (Dušek & Láska), which was described from Afghanistan.

3. Tergum 2 with yellow spots broadly confluent; femur 3 with broad diagonal brownish annulus, or with darkening on anterior one-half (China; Afghanistan; Bangladesh?; Bhutan?; Burma?; Ceylon; India: AR, AS, BI, DE, GU, HP, JK, KN, MG, PU, SI, TN, UP, WB; Nepal; Pakistan; Thailand?; i-ii, iv-xii; m & f) *confrater* (Wiedemann)
- Tergum 2 with yellow spots distinct; femur 3 yellow, at most with basal one-fourth brownish black 4
4. Gena entirely black; facial tubercle brownish; male tergum 4 with an entire yellow fascia on posterior margin; male terminalia large; female frons with dorsal one-half or less black, with dust spots absent or reduced to an oblique 'finger' on each side and well separated from each other in centre (Europe; Afghanistan; Bangladesh?; Bhutan?; Burma?; India: AR, HP, JK, MG, PU, UP, WB; Nepal?; Pakistan; iii-vi, viii-x; m & f) *corollae* (Fabricius)
- Gena yellow with dark anterior margin; facial tubercle yellow; male tergum 4 with yellow fascia on posterior margin emarginate in centre; male terminalia small, normal; female frons with dorsal one-half black, with a pair of large dust spots which are narrowly separated from each other in centre (Sudan; Europe; Iran; Afghanistan?; India?; Nepal; Pakistan?; iv, xi-xii; m & f) *nuba* (Wiedemann)

Key to species of *LEUCOZONA* Schiner³

1. Face entirely black; scutellum black with posterior one-third yellow; tergum 2 entirely yellow (India: UP; viii; m) *brunettii* Ghorpadé, sp. nov. [Holotype male, Mussoorie, 3-14.viii.1978 (Copenhagen Zool. Mus. Expdn) - UZM]
- Face predominantly yellow but gena and lower face black in *virendra*; scutellum yellow; tergum 2 with some black areas 2
2. Scutellum with only yellow hairs; tibiae yellow; female frons with black hairs only; abdomen black with typical *Syrphus*-like pattern, with tergum 2 bearing a pair of yellow spots and terga 3 & 4 each with a complete yellow fascia (Nepal; Burma; India?; China; v-vi, viii; m & f) *kingdonwardi* Ghorpadé, sp. nov. [Holotype male, Nepal 28°00' N, 85°00' E, 21-27.v.1967 (Canadian Nepal Expdn) - CNC. Paratype females, Adung Valley in NE. Burma, Shifu in Szechuan - AMNH, BMNH, USNM]
- Scutellum with yellow and black hairs; tibiae yellow and black; female frons with yellow and black hairs; abdomen with terga entirely black but with most of tergum 2 and anterolateral corners of tergum 3 yellow (India: UP; ix; f) *virendra* Ghorpadé, sp. nov. [Holotype female, Dhakuri, 28.ix.1973 (Gupta) - KGC]

Key to species of *MELISCAEVA* Frey⁶

1. Face entirely yellow, without a dark vitta or tubercle except in females of *lefroyi* which have a narrow incomplete facial vitta 2
- Face yellow with a broad dark median vitta or with only facial tubercle broadly darkened 5
2. Antenna entirely yellow; hind leg almost entirely yellow with femur 3 of males slightly darkened in centre; terga 3 & 4 with anterior corners black, without an anterior black fascia;

- female with femur 3 entirely yellow (Burma; vi; m & f) *malaisei* Ghorpadé, sp. nov. [Holotype male, Kambaiti, 11.vi.1934 (Malaise) - ZMUH. Paratype female, Kambaiti - ZMUH]
- Antenna yellow, dorsally blackish; femur 3 entirely yellow but with darkened area in centre; tergum 3 with complete anterior black fascia which may be emarginate in centre in some specimens; tergum 4 with anterior black fascia interrupted in centre 3
3. Male tergum 2 with black median vitta at its widest narrower than the black posterior fascia; male frons with hairs brownish yellow; male terga 3 & 4 with anterior black fasciae complete; female tergum 2 with median black vitta not developed or, if present, narrower than the black posterior fascia (Java; Burma?; Ceylon; India?; Malaya; Thailand; ii, v-vi, x; m & f) *strigifrons* (de Meijere)
- Male tergum 2 with black median vitta broader than the black posterior fascia; male frons with hairs black; male tergum 3 with anterior black fascia complete or incomplete, but that on tergum 4 always incomplete; female tergum 2 with median black vitta broader than the black posterior fascia 4
4. Female with dark facial vitta narrow, incomplete; tergum 5 with black posterior fascia reaching only mid-length of tergum; male tibia 2 with black hairs on apical one-half (India: JK, HP, UP; viii-x; m & f) *lefroyi* Ghorpadé, sp. nov. [Holotype male, Gulmarg, 17.viii.-5.ix.1978 (Copenhagen Zool. Mus. Expdn) - UZM. Paratypes m & f, Kalatop, Dhakuri, Dhenkund, Dwali, Khati, Mussoorie - CIBCI, KGC]
- Female without dark facial vitta, face entirely yellow; tergum 5 with black posterior fascia produced triangularly forward in middle of tergum and almost reaching anterior margin; male tibia 2 with black hairs only on apical one-sixth (India: WB, MG; v; m & f) *cinctelloides* Ghorpadé, sp. nov. [Holotype male, Darjeeling, 1.v.1974 (Ghorpadé) - KGC. Paratypes m & f, Darjeeling, Shillong - KGC, IARI]
5. Face yellow, only facial tubercle broadly brownish black, dark median vitta absent; male with hairs on frons yellowish brown; female terga 3 & 4 with anterior black fasciae complete, not emarginate in centre; female frons at vertex only one-fourth as wide as at level of antennal bases (India: TN, KL; iii-iv, x; m & f) *mathisi* Ghorpadé, sp. nov. [Holotype male, Yercaud, 20.ix.1978 (Ghorpadé) - KGC. Paratypes m & f, Yercaud, Ootacamund, 13km NE. Munnar - CAS, KGC]
- Face yellow with broad, complete or almost complete, dark median vitta; male with hairs on frons black; female tergum 3 with anterior black fascia complete but emarginate in centre, tergum 4 with anterior black fascia variable; female frons at vertex broader, one-third as wide as at level of antennal bases 6

⁶*Meliscaeva darjeelingensis* Datta & Chakraborti (1986: 4, Fig. 1), described from 4 males and 3 females collected in the Lloyd Botanical Garden at Darjeeling on 4.i.1971, is close to *kusuma* Ghorpadé, sp. nov., but differs from it as follows: Its facial tubercle is described as 'slightly produced forward below'. Its facial vitta is a 'faint brown mid-line from base of antennae to mouth border'. Its hind femur is 'black except some basal portion and distal portion', and its 'underside with long hairs.' The male terminalia of *darjeelingensis* are unlike those of any other Indian species keyed above.

6. Scutellum dark on disc; lower face distinctly produced forward, with oral cavity almost three times as long as wide, facial dark vitta broad and complete; male tergum 3 with anterior black fascia complete and not emarginate in centre, tergum 4 with only anterior corners black; female tergum 2 with black median vitta broader than black posterior fascia, tergum 4 with anterior black fascia complete but very narrow and not emarginate in centre (Ceylon; India: TN; vii, ix-xi; m & f) *ceylonica* (Keiser)
- Scutellum entirely yellow; lower face not produced, normal, with oral cavity at most only two times as long as wide, facial dark vitta variably broad or narrow and complete or incomplete; male tergum 3 with anterior black fascia complete and emarginate in centre, tergum 4 with anterior black fascia incomplete (complete in *magnifica*); female tergum 2 with black median vitta equal to or narrower than black posterior fascia, tergum 4 with anterior black fascia variable 7
7. Wing entirely microtrichose except for extreme base of second costal cell anteriorly; facial black vitta complete, narrower in male, broad in female (some female specimens have an incomplete vitta) (India: HP, UP; Nepal?; viii-x, m & f) *tribeni* (Nayar)
- Wing with costal and basal cells partly bare, not microtrichose; facial black vitta broad and complete or almost complete 8
8. Facial black vitta complete, oral cavity more than two times as long as wide, lunule entirely black; male tergum 4 with anterior black fascia incomplete in centre; male terminalia distinctive with surstylus broad and oblong in lateral aspect (India: WB; v, x; m & f) *kusuma* Ghorpadé, sp. nov. [Holotype male, Darjeeling, 1.v.1974 (*Ghorpadé*) - KGC. Paratypes m & f, Debrepani, Kalimpong - CAS, KGC]
- Facial black vitta almost complete, oral cavity at most only two times as long as wide, lunule orange on extreme sides; male tergum 4 with anterior black fascia complete; male terminalia distinctive with surstylus narrower, broadly S-shaped in lateral aspect (India: WB; x; m & f) *magnifica* Ghorpadé, sp. nov. [Holotype male, Debrepani, 22.x.1961 (*Ross & Cavagnaro*) - CAS. Paratypes m & f, Debrepani - CAS]

Key to species of *PARASYRPHUS* Matsumura

1. Yellow fasciae on terga 3 & 4 divided into pairs of arcuate spots; tibia 3 (in female only?) yellow with a black median annulus (Nepal; v; m & f) *sherpa* Ghorpadé, sp. nov. [Holotype male, Nepal 27°58' N, 85°00' E, 18.v.1967 (*Canadian Nepal Expdn*) - CNC. Paratype female, Nepal, 27°58' N, 85°00' E - CNC]
- Yellow fasciae on terga 3 & 4 complete; tibia 3 brownish black except basal one-fourth or less 2
2. Facial vitta brownish black, distinct and complete; oral margin broadly black; femora 1 & 2 with more than basal one-third to one-half yellow; tibiae 1 & 2 at least with a subapical brownish black annulus (Japan; Bhutan?; Burma?; India?; Nepal; iv-vi; m & f) *aeneostoma* Matsumura
- Facial vitta very thin and incomplete or absent, if present not reaching antennal bases; oral margin entirely yellow; femora 1 & 2 with only basal one-fourth to one-third brownish black; tibiae 1 & 2 entirely yellow 3

3. Facial tubercle with a narrow brownish median vitta; lower face with brownish or black hairs; sternum 3 with long yellow hairs and long or short black hairs (India: JK, HP, UP; vi, viii-x; m & f) *thompsoni* Ghorpadé, sp. nov. [Holotype male, Gulmarg, 18.x.1974 (*Ghorpadé*) - KGC. Paratype females, Gulmarg, Dalhousie, Harsil - KGC, UZM]
- Facial tubercle yellow; hairs on lower face and sternum 3 entirely yellow (India: JK; x; m & f) *kashmiricus* Ghorpadé, sp. nov. [Holotype male, Pahalgam, 17.x.1974 (*Ghorpadé*) - KGC]

Key to species of *RHINOACCHA* de Meijere

1. Pleurotergite yellow on anterior two-third, otherwise black; face with oral margin entirely yellow; scutellum black with anterior one-third yellow; femur 3 brownish black except for extreme base; tergum 5 in female entirely black (India: KN, TN; viii, xi; m & f) *peterseni* Ghorpadé, sp. nov. [Holotype male, Kemmangundi, 11-16.xi.1977 (*Copenhagen Zool. Mus. Expdn*) - UZM. Paratypes m & f, Kemmangundi, Coonoor - KGC, UZM]
- Pleurotergite entirely black; face with oral margin at least partly brownish black; scutellum entirely black or with less than anterior one-sixth yellow; femur 3 yellow, only dorsally brownish; tergum 5 in female entirely black or with a pair of yellow vertical vittae 2
2. Face with oral margin yellow on anterior one-half; antennal segment 3 partly yellow; scutellum black with anterior one-sixth or less yellow; terga 2 to 4 each with a pair of oblique yellow spots; tergum 5 in female black, with a pair of vittate yellow spots (Ceylon; ii-xi; m & f) *gracilis* de Meijere
- Face with oral margin, antennal segment 3, scutellum and abdominal terga all brownish black or black (India: TN; KL; iii, x; m & f) *krishna* Ghorpadé, sp. nov. [Holotype male, Shembaganur, 31.x.1975 (*Viraktamath*) - KGC. Paratypes m & f, Shembaganur, Munnar - KGC]

Key to species of *SCAeva* Fabricius

1. Tergum 2 with pale spots not reaching lateral margins; tergum 5 with lateral margins mostly black 2
- Tergum 2 with pale spots confluent with lateral margins; tergum 5 with lateral margins mostly yellow 3
2. Scutellum almost entirely black haired; tergum 2 with pale spots lunulate and narrow; terga 3 & 4 with pale spots lunulate, their inner ends spatulate; tergum 5 with posterior yellow marginal fascia not sinuate (Europe; Afghanistan?; India: JK, PU, UP; Nepal?; Pakistan; vi, x-xii; m & f) *pyrastris* (Linnaeus)
- Scutellum with white hairs, at least on anterior one-half; tergum 2 with pale spots triangular; terga 3 & 4 with pale spots broad and quadrate, their inner ends truncate or weakly arcuate; tergum 5 with posterior yellow marginal fascia sinuate (Europe; Iran; Afghanistan; India?; Pakistan; iii, vi, viii-x; m & f) *albomaculata* (Macquart)
3. Mesonotum with lateral margins not bright yellow and not distinct from dark dorsum; scutellum almost entirely black haired; terga 3 & 4 with pale spots lunulate (China; Afghanistan; Bhutan?; India: MG; Nepal?; Pakistan?; i, iv, viii; m & f) *lunata* (Wiedemann)

- Mesonotum with lateral margins bright yellow, distinct from black dorsum; scutellum with white hairs, at least on anterior one-third; terga 3 & 4 with pale spots quadrate oval (India: UP, DE, HP, JK, PU, RA, WB; Iran; Tadzikistan; Bhutan?; Nepal ?; Pakistan; i-iv, ix-x, xii; m & f) *latimaculata* (Brunetti)

Key to species of SPHAEROPHORIA Le Peletier & Serville

1. Mesonotum with lateral yellow margins complete; facial black median vitta very weak or absent 2
- Mesonotum with lateral yellow margins incomplete, extending only to transverse suture; facial black vitta variable 7
2. Antennal segment 3 entirely yellow, lunule yellow; scutellum only with yellow hairs; femur 1 only with yellow hairs; tergum 2 with yellow fascia reaching lateral margins in total width, not narrowing; female frons with median black vitta narrower than adjacent yellow areas, tergum 2 having yellow fascia posteriorly emarginate in centre, tergum 6 yellow with a subtriangular vertical black spot (India: WB, BI, DE, HP, JK, MH, PU, UP; Iran; Turkmenistan; Bangladesh?; Bhutan?; Nepal; Pakistan; iii-v, vii-xii; m & f) *bengalensis* Macquart
- Antennal segment 3 at least faintly brown dorsally; scutellum with at least a few black hairs; tergum 2 with yellow fascia narrowing to lateral margins; female frons with median black vitta at least as wide as adjacent yellow areas, tergum 6 differently marked 3
3. Femur 1 almost entirely black haired; male femur 3 with stout black spinules posteroventrally on apical one-third; female femur 3 with thick black hairs posteroventrally on apical one-third, tergum 2 with yellow fascia deeply emarginate posteriorly or narrowly divided in centre, tergum 6 with a subtriangular anteromedian black spot flanked by two similar spots on posterior margin (Sweden; Afghanistan; India: JK; Pakistan ?; iv, vi-x; m & f) *scripta* (Linnaeus)
- Femur 1 with yellow hairs at least on basal one-third; male femur 3 with no such spinules; female femur 3 with normal hairs, tergum 2 with yellow fascia not emarginate posteriorly (at most narrowed in centre), tergum 6 differently marked ... 4
4. Face with weak but distinct brownish black vitta; lunule at least partly brownish black; scutellum almost entirely black haired; female frons with median black vitta very broad, at least three times as wide as adjacent yellow areas, tergum 6 with large subtriangular black spot anteromedially on margin, separated from posterior margin (India : TN, KL; iii-v, x; m & f) *knutsoni* Ghorpadé, **sp. nov.** [Holotype male, Kodaikanal, 29.x.1975 (*Ghorpadé*) - KGC. Paratypes m & f, Kodaikanal, Ootacamund, Shembaganur, Munnar - BMNH, CAS, CNC, KGC]
- Face entirely yellow, without a vitta; lunule entirely yellow; scutellum with yellow hairs at least on lateral one-fourth; female frontal black vitta as wide as adjacent yellow areas, tergum 6 differently marked 5
5. Male femur 1 with anterior one-half more or less entirely black haired; female tergum 6 yellow with three black spots which are narrowly confluent in some specimens ('India': India: AR?, AS, BI ?, DE, HP, MG, MP, PU, SI, UP, WB; Bangladesh?; Bhutan; Burma; Nepal; Pakistan ?; ii-vii, ix-xi; m & f) *indiana* Bigot

- Male femur 1 entirely yellow haired or at most with a few black hairs on extreme apex; female tergum 6 yellow with a median black vitta joining subposterior black fascia 6
- 6. Scutellum almost entirely yellow haired, at most with a few black hairs posteromedially; male tergum 2 with yellow fascia only slightly narrowed at lateral margins (here more than one-half width of that at centre); female tergum 6 with an anteromedian black vittate spot, with a faint pair of roundish black spots posteriorly, these distinct or confluent in some specimens (Australia; Bangladesh ?; Bhutan?; Burma; Ceylon; India : KL, KN, MG, MH, MP, PU, SI, TN, WB; Nepal; Pakistan ?; i-v, vii-xii; m & f) *macrogaster* (Thomson)
- Scutellum with more than median one-half black haired, only anterolateral corners yellow haired; male tergum 2 with yellow fascia narrowing considerably to lateral margins (here less than one-half the width of that at centre); female tergum 6 with a large black spot shaped as an anteromedian vittate spot joined to a transverse median fasciate spot (India: AR, AS, MN; Bhutan?; Burma?; Thailand; v, viii-xi; m & f) ... *vockerothi* Joseph
- 7. Lunule yellow; tergum 2 with yellow fascia distinctly divided into two spots; scutellum almost entirely yellow haired, at most with a few black hairs posteromedially (Abyssinia; Europe; N.Asia; India: JK; Pakistan?; viii-x; m & f) *rueppellii* (Wiedemann)
- Lunule at least partly black; tergum 2 with yellow fascia entire; scutellum at least with posteromedian one-third black haired 8
- 8. Frons entirely black haired; scutellum almost entirely black haired; female frons with black vitta two times as wide as adjacent yellow areas, tergum 6 reduced and less than one-half as long as tergum 5 (India : HP, JK, UP, WB; Bhutan?; Nepal; Pakistan?; iv-vi, viii-x; m & f) *viridaenea* Brunetti
- Frons yellow haired; scutellum with yellow hairs at least on anterior one-half; female with frontal vitta as wide as adjacent yellow areas; tergum 6 normal (female of *ladakhensis* unknown) 9
- 9. Antennal segment 3 brownish black only on dorsal one-half; femur 1 entirely yellow haired; scutellum black haired only posteromedially; female tergum 6 yellow with a large subtriangular black spot attaining anteromedian and lateral margins (India : AR, MG, SI, WB; Bangladesh?; Bhutan?; Burma; Nepal?; Thailand; i, iv-v, ix; m & f) *assamensis* Joseph
- Antennal segment 3 almost entirely brownish black; femur 1 almost entirely black haired; scutellum with posterior two-third or so black haired; female unknown (India : JK; vi; m) *ladakhensis* Ghorpadé, **sp. nov.** [Holotype male, Drass, 12.vi.1973 (*Girish Chandra*) - KGC]

Key to species of SYRPHUS Fabricius

1. Wing with second basal cell wholly microtrichose; femur 3 covered with black hairs on more than basal one-half; tergum 2 with at least a few black hairs on apical one-half 2
- Wing with second basal cell at least partly bare; femur 3 with apical one-third to one-half black spinulose; tergum 2 black haired on black areas posterior to yellow spots 3

2. Eye distinctly haired, hairs short but dense in male, shorter and scattered in female; sternum 3 with a smaller median spot (not a fascia) quadrate, elongate or triangular; female femur 3 with at least basal one-half black; tibiae 1 & 2 in both sexes with at least basal one-third black (N. America; Europe; Bhutan?; India: HP, JK, UP, WB; Nepal; Pakistan?; v, x-xi; m & f) *torvus* Osten Sacken
- Eye bare or very sparsely and minutely haired; sternum 3 with a wide median black fascia which has its anterior margin produced medially and laterally; female with femur 3 entirely yellow except for dark extreme base; male tibiae 1 & 2 black at least on basal one-fourth, in female they are almost entirely yellow except for their extreme bases (England; Europe; India: HP, JK, UP; Nepal?; Pakistan?; viii-x; m & f) *ribesii* (Linnaeus)
3. Legs almost entirely yellow, at most the extreme bases of femora 1 & 2 and an oblique fascia on femur 3 (in *dalhousiae*) dark 4
- Legs distinctly black on basal areas, on tibiae at least on basal one-sixth, on femora at least on basal one-half 5
4. Femur 3 with an oblique posteromedian black fascia; sternum 2 yellow with a median brownish black spot; sternum 3 yellow with a median brownish black fascia (India: HP, JK, UP; vi-vii, ix-x; m & f) *dalhousiae* Ghorpadé, sp. nov. [Holotype male, Dalhousie, 10.x.1974 (*Ghorpadé*) - KGC. Paratypes m & f, Dalhousie, Simla, Srinagar, Mussoorie - CIBCI, CNC, KGC]
- Femur 3 and sternum 2 & 3 entirely yellow (India: JK; x; f) *howletti* Ghorpadé, sp. nov. [Holotype female, Srinagar, 16.x.1974 (*Ghorpadé*) - KGC. Paratype female, Srinagar - KGC]
5. Femora 1 & 2 black on basal one-fifth to one-sixth; tibia 3 entirely yellow (Europe; India; JK; Pakistan?; vi, x; m & f) *vitripennis* Meigen
- Femora 1 & 2 black on basal one-third to one-half; tibia 3 black on apical one-half (India: AR, MG, SI, UP, WB; Bangladesh?; Bhutan?; Burma?; Nepal; iv, vi-xii; m & f) *fulvifacies* Brunetti

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