

## Three new species of family *Syrphidae* (Diptera) from India

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Abstract. Three new species of family *Syrphidae*, viz. *Merodon brunetti*, *Spheginobaccha christiani*, and *Paragus ambalaensis* from India are described. The male terminalia of *M. brunetti* and *S. christiani* are also illustrated and described.

Key words: *Diptera*, *Syrphidae*, systematics, new species, India

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The *Syrphidae* is one of the largest family of the order *Diptera*. The members of this family are commonly known as "hover" or "flower" flies. BRUNETTI (1923) described 267 species belonging to 51 genera of *Syrphidae* from Indian subcontinent. Subsequently, BLAIR (1948), COE (1964), THOMPSON (1964), NAYAR (1967), ANAND (1967), GHORPADE (1981), DATTA and CHAKRABORTI (1986), SINGH et al. (1986), and KOHLI (1987) recorded or/and described a few more species of hover flies from this region. The taxonomic studies of the syrphids of North-Western India revealed three new species (SINGH) et al. 1985), which are described in this paper.

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### *Merodon brunetti* n. sp.

**Description.** Male: Head (Fig. 1): face white, arched, with a fuscus median line broad above and narrow below, covered with white tomentum and hair; clypeus fuscus; mouth opening brown, wide, bottle-shaped, proboscis fusco-rufous; genae black with shining grey tomentum and whitish hair; frons yellow, conspicuously raised and projected; antennae dull black, third segment round at the apex, aristae thin, long, fulvous

and bare; eyes fusco-rufous, bare, contiguous for one-third of distance from upper angle of frons to vertex, facets equal, ocellar triangle black, lateral ocelli light yellow and median fulvo-aeneous; vertex golden yellow with black hair; occiput dull black with long pale and short black hair.

**Thorax (Fig. 2):** dorsum yellowish grey with yellow hair, bearing three black longitudinal stripes ending near the hind margin but not touching it, the middle one subdivided; pleurae black with broad dusty grey stripe on meso and sternopleuron, prostigma covered with golden yellow tomentum; scutellum yellow with a dull black band anteriorly, covered with thick pale pubescence and scattered black hair and with a median line dividing it equally; subscutellum black.

**Legs:** almost black, covered with yellow and scattered black hair, first leg completely black, base of middle tibiae yellow, hind femora (Fig. 4) toothed below and proximally bears a bunch of spinules, first hind tarsus with a peculiar bunch of black hair swollen apically.

**Wing (Fig. 3):** hyaline, pubescent, spurious vein light brown, anterior cross vein after the middle of discal cell, third longitudinal vein looped downwards into first posterior cell, stigma grey; halteres club-shaped and yellow; alulae well developed, golden yellow, with a fringe of yellow hair.

**Abdomen:** yellow, covered mainly with yellow but partly with black pubescence, first segment dull black medially, second segment with a distinct dark black triangle anteriorly and dull black triangle posteriorly, both the triangles united medially at their apices by a black stripe, third segment with a posterior light black triangle, with a light yellow band running through its lateral arms and with a median black stripe not touching anterior margin, fourth segment yellow with light black irregular patches containing a fusco-rufous inverted V-shaped area in the middle, the remaining segments with black hue.

Length of body (devoid of antennae) 12.5 mm, length of wing 8.6 mm.

**Male terminalia:** Periphallalic organs: 9th tergite yellow, partly pubescent (Fig. 6); cerci yellow, roughly triangular (Fig. 6), pediculate towards the cercal notch, pubescent and with pale bristles; surstyli large, outside convex, innerside concave (Fig. 5); surstyler apodemes U-shaped (Fig. 5).

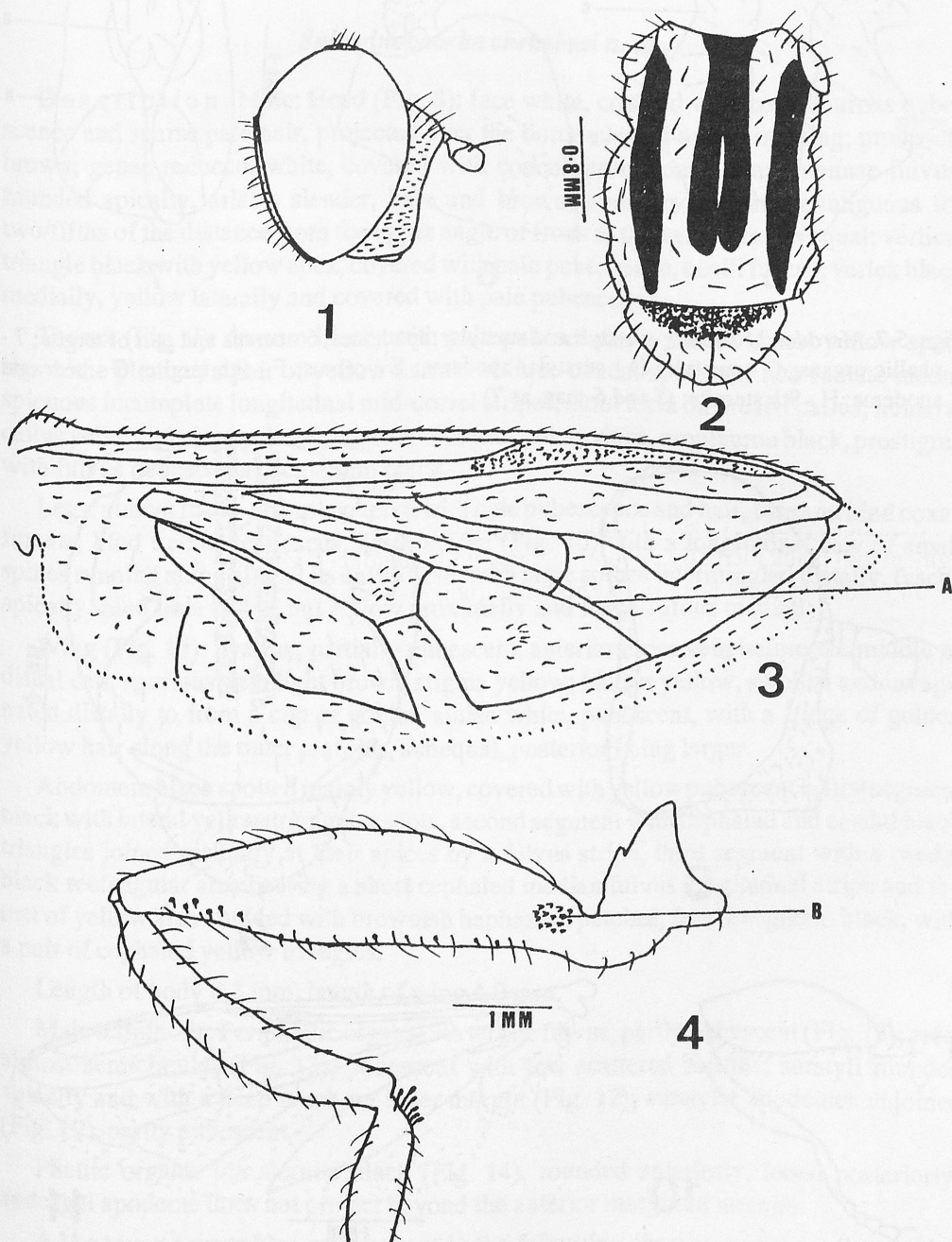
**Phallic organs:** 9th sternite slightly longer than broad, rounded anteriorly (Fig. 7), aedeagal apodeme projects beyond the anterior and posterior margins of the 9th sternite.

**Allotype:** resembles the male except the eyes are wide apart. Length of body 13.1 mm, length of wing 8.5 mm.

**Material examined:** holotype and allotype from Morinda, paratypes (same data as holotype and allotype): four males and one female. Coll. N. S. SODHI. All types in the Entomological Section, Department of Zoology, Panjab University, Chandigarh, India.

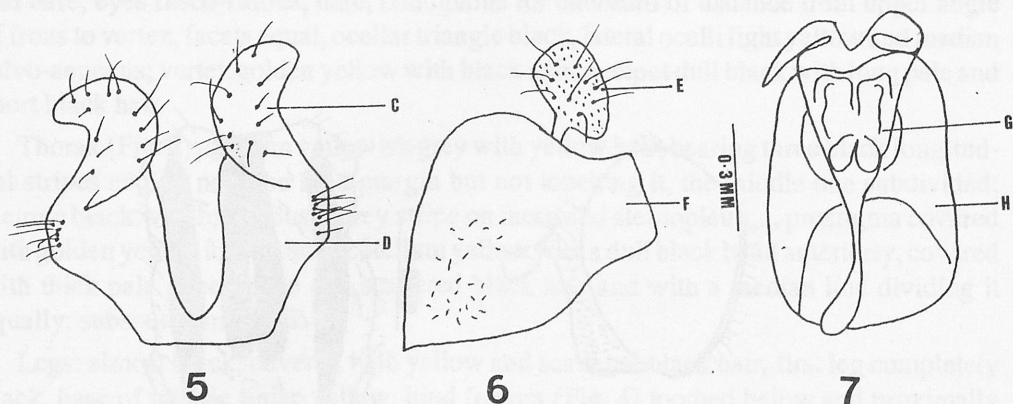
**Distribution:** Morinda, Zirakpur, and Ambala.

**Diagnosis:** This species resembles superficially with *M. pallidus* MACQUART, but differs in having bare eyes, thoracic stripes fall short of the hind margin, scutellum with cephalad black band, first tarsus of hind leg with bunch of black hair swollen apically, and

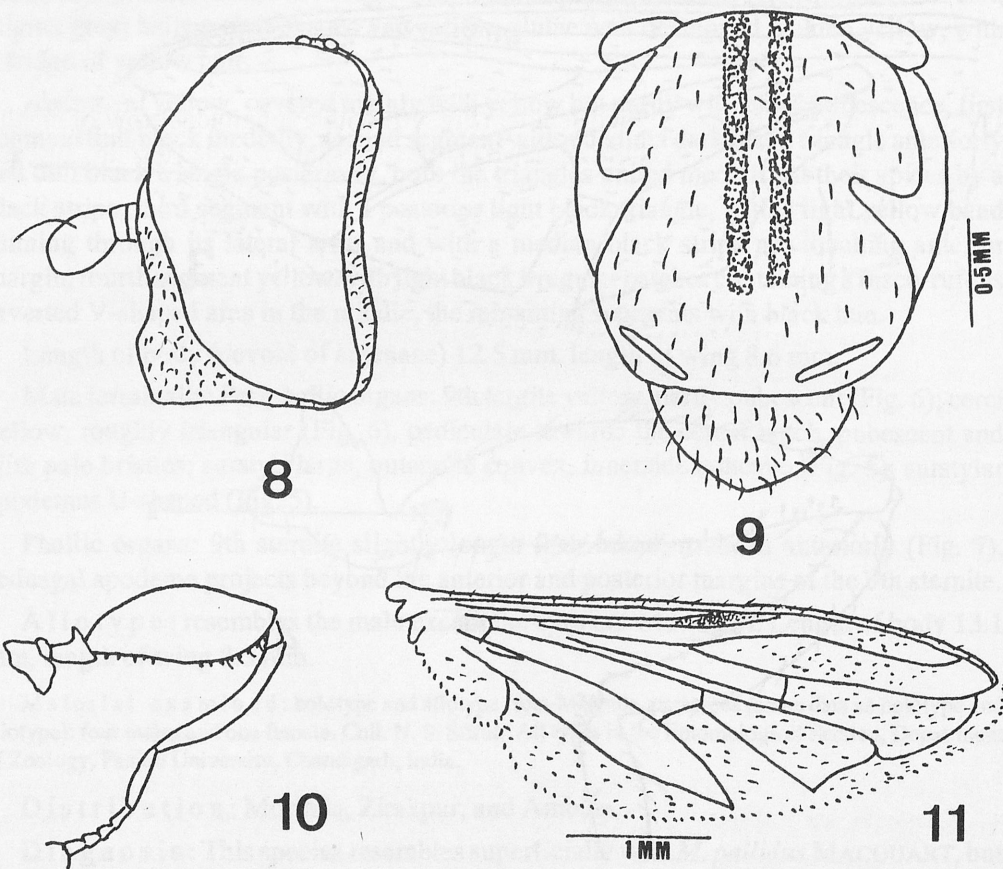


Figs. 1-4. *Merodon brunetti* n. sp. 1 - head in profile; 2 - thorax; 3 - wing; 4 - part of hind leg; A - spurious vein; B - spinule; (1-mag. as 2; 3-mag. as 4).





Figs. 5-7. *Merodon brunetti* 5 - surstyli and surstyler apodemes; 6 - cercus and part of tergite; 7 - phallic organs; C - surstyle; D - surstyler apodeme; E - cercus; F - 9th tergite; G - aedeagal apodeme; H - 9th sternite; (5 and 6-mag. as 7).



Figs. 8-11. *Spheginobaccha christiani* n. sp. 8 - head in profile; 9 - thorax; 10 - hind leg; 11 - wing; (8 and 10-mag. as 11).

4th abdominal segment is not replica of the third. This species is named after the syrphid systematist E. BRUNETTI.

*Spheginobaccha christiani* n. sp.

**Description.** Male: Head (Fig. 8): face white, covered with concolourous pubescence and sparse pale hair, projected over the bottle-shaped mouth opening; proboscis brown; genae reduced, white, covered with concolourous tomentum; antennae fulvus, rounded apically, aristae slender, bare and brown; eyes fuscus, bare, contiguous for two-fifths of the distance from the upper angle of frons to the vertex, facets equal; vertical triangle black with yellow apex, covered with pale pubescence, ocelli fuscus; vertex black medially, yellow laterally and covered with pale pubescence.

Thorax (Fig. 9): dorsum black, with pale pubescence, a pair of lateral yellow spots above the pleurae, a pair of yellow narrow oblique caudal spots and two fumate inconspicuous incomplete longitudinal mid-dorsal stripes, stout teeth on prealar callus; humeral callus yellow, pleurae yellow with concolourous pubescence, propleuron black, prostigma with fulvus pubescence; scutellum black.

Legs: almost fusco-rufous, covered with pale pubescence and hair, fore and hind coxae fumate, hind trochanter fuscus, hind femora (Fig. 10) with a longitudinal row of small spines running along almost its entire base, with large spines intermingled distally, fuscus apically, hind tibia fuscus but yellow proximally and fusco-rufous medially.

Wing (Fig. 11): hyaline, partially pubescent, anterior cross vein before the middle of discal cell, spurious vein light brown, stigma yellow; halteres yellow, swollen and invaginated distally to form a cup or goblet; alulae white, pubescent, with a fringe of golden yellow hair along the outer margins, subequal, posterior being larger.

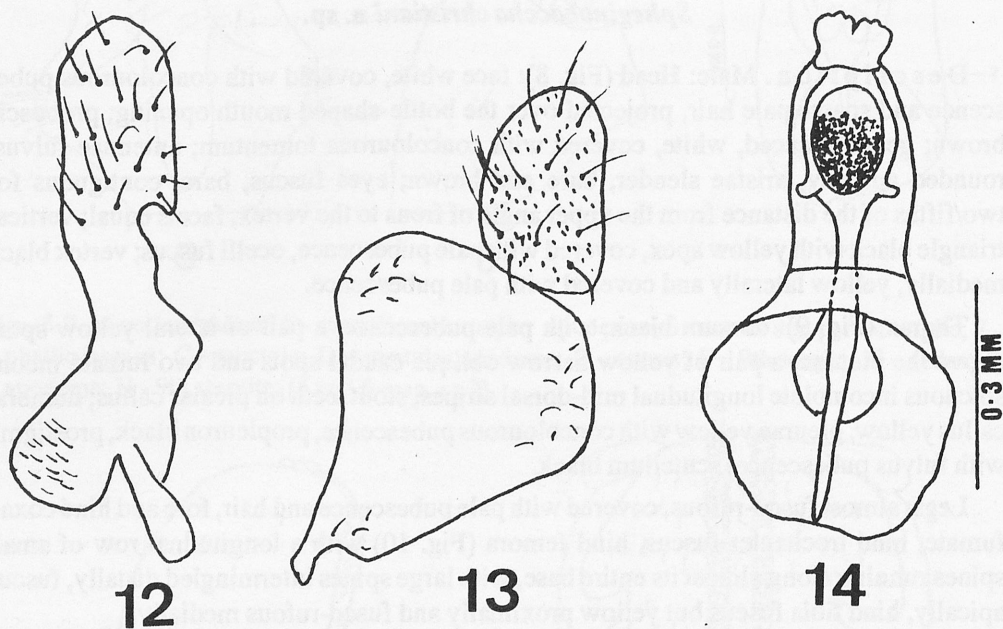
Abdomen: black spotted mainly yellow, covered with yellow pubescence, first segment black with lateral yellow triangular spots, second segment with cephalad and caudal black triangles joined medially at their apices by a fulvus stripe, third segment with a caudal black rectangular area bearing a short cephalad median fulvus longitudinal stripe and the rest of yellow area studded with brownish haphazard patches, fourth segment black, with a pair of cephalad yellow triangles.

Length of body 8.3 mm, length of wing 4.9 mm.

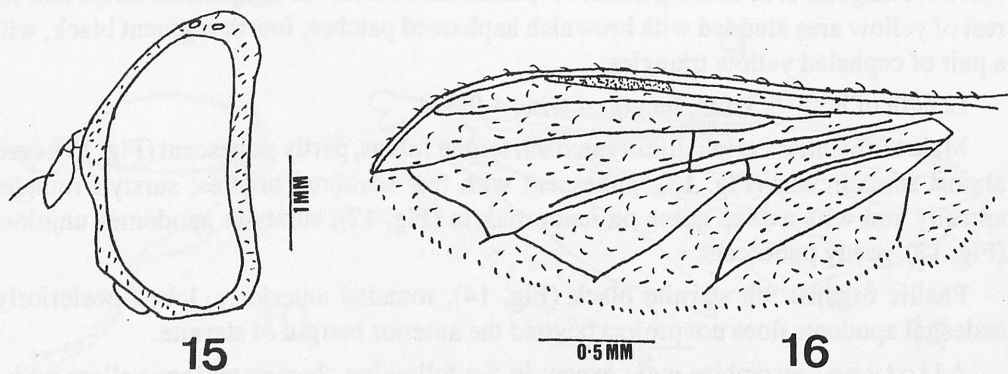
**Male terminalia:** Periphalllic organs: 9th tergite fulvus, partly pubescent (Fig. 13); cerci almost semicircular (Fig. 13), pubescent with few scattered bristles; surstyli rounded apically and with a deep notch on inner margin (Fig. 12); surstyler apodemes unjoined (Fig. 12), partly pubescent.

**Phallic organs:** 9th sternite black (Fig. 14), rounded anteriorly, lobed posteriorly; aedeagal apodeme does not project beyond the anterior margin of sternite.

**Allotype:** resembles male except in the following characters: face yellow with a median fuscus stripe running on its lower margin; frons yellow with a black transverse stripe anteriorly and a black longitudinal stripe medially; hind femora and tibia fuscus, the



Figs. 12-14. *Spheginobaccha christiani* 12 - surstyle and surstylar apodeme; 13 - cercus and part of tergite; 14 - phallic organs; (12 and 13-mag. as 14).



Figs. 15-16. *Paragus ambalaensis* n. sp. 15 - head in profile; 16 - wing.



latter yellow proximally; abdomen black, first segment fulvus, second segment with a pair of lateral yellow squarish spots, third segment with a pair of triangular yellow cephalad spots. Length of body 5.0 mm, length of wing 2.3 mm.

**Material examined:** holotype from Nainital, allotype from Chandigarh; paratypes (same data as holotype and allotype): eight males and two females. Coll. N. S. SODHI. All types in the Entomological Section, Department of Zoology, Panjab University, Chandigarh, India.

**Distribution:** Nainital, and Chandigarh.

**Diagnosis:** This species resembles *S. macropoda* Bigot, but differs in lacking furrow in the frons, bare eyes, thorax with spots and stripes, prealar callus with stout teeth, femora of females yellow, and yellow stigma. This species is named after the syrphid systematist F. C. TOMPSON.

### *Paragus ambalaensis* n. sp.

**Description.** Female: Head (Fig. 15): broader than thorax; face black, with a shining black central knob, covered with white pubescence; clypeus black, mouth opening bottle-shaped, proboscis brown; genae black with sparse white pubescence; frons black, covered with mixed black and pale pubescence; antennae fulvus, aristae bare; ocellar triangle black, with pale hair, ocelli fuscus; vertex yellowish black with pale pubescence.

**Thorax:** quadrate, black dorsally, covered with dense pale hair; humeral callus black, pleurae black with pale hair, prostigma black, spiracle surrounded by pale pubescence; scutellum large, black, with pale hair.

**Legs:** mainly fulvus, covered with pale pubescence.

**Wing** ((Fig. 16): hyaline, pubescent. anterior cross-vein before the middle of discal cell, spurious vein light brown, stigma fulvus; halteres fulvus; alulae white, subequal.

**Abdomen:** almost as wide as thorax, fuscus, with pale pubescence, second segment with a pair of muddy spots, a pair of inconspicuous, fulvus, rectangular spots occupying the flanks of both the third and fourth segments.

Length of body 7.4 mm, length of wing 6.4 mm.

**Allotype:** unknown.

**Material examined:** Holotype from Ambala. Coll. N. S. SODHI. Holotype in the Entomological Section, Department of Zoology, Panjab University, Chandigarh, India.

**Diagnosis:** This species apparently resembles *P. atratus* de MEJERE, but differs in having black face, fulvus legs and halteres, thorax and abdomen with pale pubescence and third and fourth abdominal segments with a pair of inconspicuous rectangular grey spots.

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