



Research Article

First Record of *Baccha maculata* Walker, 1852 (Diptera: Syrphidae) from the Pothwar Punjab, Pakistan

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MAH collected the samples and wrote the paper. IB reviewed the article. MAB collected the data and proofread the article. AA and KH provided research guideline.

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New record, Hoverflies, *Baccha*, Syrphidae, Pothwar

Abstract | The hoverfly genus *Baccha* Fabricius, 1805 is a rarely collected aphidophagous hoverfly from Pakistan is newly recorded for the Pothwar region of Punjab. In this paper the detailed taxonomic note on *Baccha maculata* Walker, 1852, supplementary photographs, habitat information, previous distribution and remarks are provided.

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Introduction

The members of the family Syrphidae (Diptera) are commonly known as hoverflies or syrphid flies with more than 6000 described species in 14 tribes under the three subfamilies, Syrphinae, Eristalinae and Microdontinae (Thompson, 2006; Thompson and Rotheray, 1998). Immature stages in subfamily Syrphinae are natural enemies of soft-bodied Hemiptera, other Diptera, Neuroptera, Acari, Lepidoptera, Coleoptera or Thysanoptera (Rojo *et al.*, 2003).

The genus *Baccha* Fabricius, 1805 was described based on the type species *Syrphus elongatus* Fabricius, 1775. Species belonging to this genus are exceptionally slender hoverflies, characterized by petiolate abdomen. Because of the characteristic shape of the abdomen they also called 'flying pins'. *Baccha* species prefer shady parts of forests. Their larvae are zoophagous; feed on aphids and other homopterans (Van Veen, 2010). Genus *Baccha* belongs to the subfamily Syrphinae and the tribe Bacchini. There are some other syrphid genera having the petiolate abdomen, e.g. *Allobaccha* Curran, 1928, *Asiobaccha* Violovich, 1976 and *Ocyrtamus* Macquart, 1834 but they belong to the tribe Syrphini (Peck, 1988; Mengual *et al.*, 2008).

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Recently, the Syrphid fauna of Pakistan was updated

by Shehzad *et al.* (2017) which showed no record of this genus from Pakistan. Hassan *et al.* (2018) reported this genus for the first time from Banjosa lake, Azad Jammu and Kashmir as new country record. Ghorpadé (2015a) reported two species viz.; *Baccha maculata* Walker, 1852 and *Baccha tinctipennis* Brunetti, 1907 under this genus from India. He discussed the detailed taxonomic notes on these two species with synonyms and previous records. Ghorpadé (2015b) reported *Baccha maculata* from the Nepal Himalaya.

The aim of the present study is to provide information about the presence of newly recorded species *Baccha maculata* for the Pothwar region of Punjab, Pakistan.

Materials and Methods

The examined material was collected from different forest areas at Murree (Numb Behra Mall and Kuldana) in Pothwar region of Punjab, Pakistan during 2017. The adult specimens were collected by sweep net from the dense vegetation of crested Philippine violet (*Barleria cristata* L.) infested with *Aphis gossypii* Glöver, 1877 under the shade of pine trees (*Pinus wallichiana*). The collected specimens were killed in a killing jar containing potassium cyanide. After killing, the specimens were pinned and studied under Olympus SZX7 stereomicroscope. Photographs were taken with a Nikon Digital Sight DS-Fi1 camera attached to a Nikon SMZ 1500 binocular stereomicroscope. The photographs were edited in Adobe Photoshop CS v. 6.0 software. The following reference was used for the identification: Brunetti (1923). Terminology used in diagnostic characters follows Thompson (1999). The identified specimens were deposited at the National Insect Museum, Islamabad, Pakistan and Department of Entomology, Pir Mehr Ali Shah Arid Agricultural University, Rawalpindi, Pakistan.

Results

Subfamily syrphinae

Tribe bacchini: Genus *Baccha* Fabricius, 1805: Diagnostic characters

The species belonging to this genus have extremely slender and petiolate abdomen, 2nd and 3rd tergites much narrower than scutellum. Postpronotum and anterior anepisternum bare. Face and scutellum black, face generally swollen in centre, the swollen forming an indefinite bump, or distinct facial tubercle. Alula of wings not developed (Brunetti, 1923; Thompson and Rotheray, 1998; Lásková *et al.*, 2013).

Baccha maculata Walker, 1852

Figures 1 (A-D) and 2 (A-C)

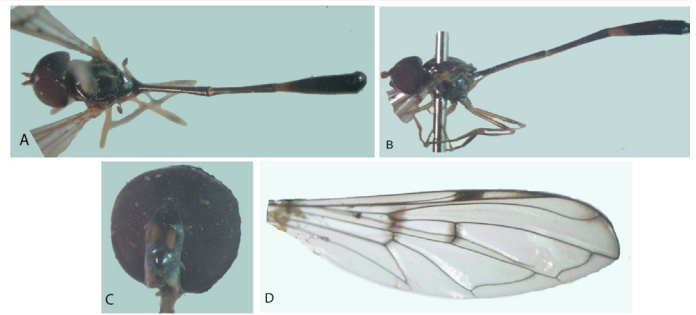


Figure 1: *Baccha maculata*. A–D (Male): A: Dorsal view. B: Lateral view. C: Face frontal view. D: Wing.



Figure 2: *Baccha maculata*. A–C (Female): A: Dorsal view. B: Lateral view. C: Face: frontal view. D (Host): *Barleria cristata*.

Material examined (13 ex.): Pakistan: Punjab

Murree: 3♂, 6♀; Numb Behra Mall, 2147m, N33°53'55.52' E73°22'13.43, 4.v.2017, 22.ix.2017, 24.ix.2017, 3.x.2017, 12.x.2107, 26.x.2017; 1♂, 3♀, Kuldana, 1928m, N33°54'50.77' E73°23'52.21, 12.v.2017, leg. M.A. Hassan.

Diagnostic characters

Face mainly black, in lower part yellow, with distinct facial tubercle or forming an indefinite bump; antennae yellowish orange; in female frons greyish dusted along the margin of eyes; legs entirely yellow except hind legs, metafemur with subapical black band, apical 1/3 of metatibia blackish, metatarsi blackish; anterior cross vein of wing suffused, pterostigma dark brown, oblong-shaped, narrow brown streak present from bifurcation of 2nd and 3rd veins down to upper margin of anal cell.

Taxonomic notes: ♀, ♂; Head

Frons shiny black, largely greyish dusted along the eyes in female, narrowly dusted in male, covered with white pile. Antennae yellowish orange. Ocellar triangle at some distance from vertex. Face black, greyish dusted, except shining tubercle, lower part of face and mouth parts yellowish. Occiput with distinct white hairs. Thorax: Scutum and scutellum shiny, bluish reflection, covered with short greyish hairs. Postpronotum bare, yellow; posterior half of posterior anepisternum yellow with

greyish pubescence, remaining parts of pleuron blue with blue reflection. Halteres yellowish with blackish knob; wings with dark pterostigma, tip of subcostal cell, anterior cross vein and a streak from bifurcation of 2nd and 3rd veins down to upper margin of anal cell brownish, alula absent. Legs mainly yellow, except blackish mesocoxa, metacoxa, subapical part of metafemur and, apical 1/3 of metatibia. Abdomen: First abdominal tergite shiny blue with blue reflection narrowly brownish at base, conical in shape, anterolaterally with patch of white hairs; tergite 2 completely black with bluish reflection, covered with sparse whitish hairs; tergite 3 black, except basal 1/5th whitish in female, narrowly yellowish at base in male, narrowly wide towards the apical side in female, parallel in male covered with sparse yellowish hairs dorsally and posterolaterally with patch of black hairs; tergite 4 in basal 1/3rd yellowish-orange covered with white hairs, remaining black with dorsal white lateral black hairs, broadly wide towards the apical side in female, conical shaped, basal 1/4th yellowish-orange with some sparse white hairs, remaining black with black hairs, slightly wider towards apical side in male; tergite 5 in female black, basally brownish remaining abdominal tergites black covered with completely short black hairs, narrows towards to its apex, in male tergite 5 as wide as long, covered with black hairs; last two abdominal segments in female usually small with complete short black hairs; sternites yellowish in female, 1st, 2nd, basal half of 3rd and 4th sternites yellowish orange, remaining black in male, 4th and 5th abdominal tergites laterally inverted leaving a hollow line in the sternites of male, with short yellowish hairs.

Distribution: Pakistan

Azad Kashmir, Banjosa lake (Hassan *et al.*, 2018), Murree: Numb Behra Mall and Kuldana; India: Nepal (Ghorpadé, 2015a and b).

Discussion

Hassan *et al.* (2018) reported the genus *Baccha* with *Baccha maculate* for the first time from Poonch district Azad Kashmir at an elevation of 1828.8 m, as a new record for Pakistan. They remarked that this species usually prefers shady areas of pine forests. We collected this species from the same habitat, on the different localities at Murree (1928–2147.316 m). This is the first record of *Baccha maculate* for the Pothwar region of Punjab, Pakistan.

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