

## NEW RECORD OF THE GENUS *Buluka* de Saeger (Hymenoptera: Braconidae: Microgastrinae) WITH DESCRIPTION OF A NEW SPECIES FROM VIETNAM

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**ABSTRACT:** *Buluka* de Saeger, 1948, is a rare genus of the subfamily Microgastrinae, in this paper one new species of the genus, *Buluka vuquangensis* Long, sp. n., is described and illustrated. Additionally, the genus *Buluka* de Saeger is recorded for the first time for Vietnam.

**Keywords:** Braconidae, Microgastrinae, *Buluka*, new record, new species, Vietnam.

### INTRODUCTION

*Buluka* de Saeger, 1948 was originally described by de Saeger (1948) [6] and placed in the subfamily Sigalphinae (de Saeger, 1948) on the basis of a carapace-like gaster, a character known to occur convergently in a wide range of braconid subfamilies. However, Nixon (1965) [13] correctly recognized the form of the wing venation and antennae, among other characters, and placed the genus in the Microgastrinae. Since then, except for the works of Mason (1981) [12], Chou (1985) [5] and Austin (1989) [3], the genus has received no attention.

The genus *Buluka* de Saeger until recently was very rarely collected, however, intensive collecting techniques, such as the use of Malaise traps, have yielded a significant number of specimens, which now allow for more critical assessment of this genus.

Originally described from two specimens collected at Rutshuru, Belgian Congo (now Zaire) (de Saeger, 1948), *B. straeleni* was subsequently also recorded from South Africa (Nixon, 1965) [13]. The study, in which Chou (1985) [5] described a second species from Taiwan, revealed further non-African species. Further, Austin (1989) [3] described five species from the Indo-Australian region and gave a key to seven known species, in fact the present distribution of the genus strongly indicates an Indo-Pacific centre of radiation.

Most species of the Microgastrinae are parasitoids of Lepidoptera hosts, that include different families, as far as now the only exception of *Apanteles* (*Choeras*) *gielisi* van

Achterberg, 2003 recorded from Trichoptera was confirmed as non-Lepidoptera hosts of Microgastrinae (van Achterberg, 2003) [2]. The genus *Buluka* de Saeger is recorded for the first time for Vietnam and one new species is described. There is no information of the host of *Buluka vuquangensis* Long, sp. n. but likely it is a larva of Lepidoptera.

### MATERIALS AND METHODS

Specimens studied are deposited in the Collection of the Institute of Ecology & Biological Resources (IEBR) and Vietnam National Museum of Nature (VNMN) at Ha Noi, assembled by the author during numerous expeditions in Vietnam.

Terminology used in this paper follows van Achterberg (1988) [1], sculpture terms are based on Harris (1979) [5]; for a key to the genera of the subfamily Microgastrinae see Nixon (1965) [13], for identification of the genus *Buluka* see Mason (1981) [11], for additional references and data to the genus *Buluka* see Yu et al. (2012) [14]; for diagnosis of *Buluka* see Austin (1989) [3]. The measurements were made with a binocular microscope (Olympus® SZ40), photographic images were made with a Canon G15 camera attached to a Olympus® SZ61 binocular microscope at IEBR. Mic. + number: code number indexing for specimens of the Microgastrinae in the collection. Abbreviations used in this paper are as follows: OD = diameter of posterior ocellus; OOL = ocular-ocellar line; POL = postocellar line; NC = North Central; NP = National Park; MT = Malaise trap. The

holotype and paratype are kept in the Vietnam National Museum of Nature (VNMN) (Ha Noi, Vietnam).

## RESULTS AND DISCUSSION

### Systematics

*Buluka* de Saeger, 1948 (Figs 1-10)

*Buluka* de Saeger, 1948: 64. Type species, by original designation, *Buluka straeleni* de Saeger, 1948. Nixon, 1965: 265; Mason, 1981: 121; Austin, 1989: 150; Austin & Dangerfield, 1992: 17.

### Diagnosis

The most distinguishing feature of *Buluka* is its gastral carapace, which is more or less formed by the fusion of second and third metasomal tergites, and fourth and following tergites retracted. This feature, although found throughout the Braconidae in various forms is rare within the Microgastrinae. The formed gastral carapace is known only in *Fornicia* Brullé, the *basimacula* species-group of *Diolcogaster* Ashmead and to a lesser degree in *Deuterixys* Mason and *Pholetesor* Mason.

Head medium-sized, eye setose (figs 3, 4, 9). Propleuron with a small apical lobe overlapping the pronotum. Scutellum and scutum densely rugose or reticulate rugose (fig. 5). Propodeum rugose, with a median carina; metanotum closely appressed to scutellum; apical band of scutellum broadly interrupted by a rugose area. Hind coxae large, extending past the posterior margin of second tergite. Vein r-m of fore wing present, areolet large, quadrangular (fig. 10); vannal lobe

convex and hairy. In dorsal view, first-third metasomal tergites occupying entire dorsal surface of abdomen and all rugose; first tergite with a median sharp groove; second tergite without medial area (fig. 6); second metasomal suture comparatively wide; third metasomal suture more or less fused. Hypopygium short and evenly sclerotized; ovipositor short, sheath setose only at apex and with a pair of large apical spatulate sensilla.

### Checklist and distribution of *Buluka* species

*Buluka achterbergi* Austin, 1989; from Malaysia; Malaysia-Peninsular.

*Buluka collessi* Austin & Dangerfield, 1992; from Australia; Australia-Queensland.

*Buluka vuquangensis* Long, sp. n.; from Vietnam.

*Buluka huddlestoni* Austin, 1989; from Solomon Islands.

*Buluka noyesi* Austin, 1989; from India.

*Buluka orientalis* Zhou, 1985; from China; China-Taiwan.

*Buluka straeleni* De Saeger, 1948; from Cameroon; Democratic Republic of Congo; South Africa.

*Buluka taiwanensis* Austin, 1989; from China; China-Taiwan.

*Buluka townesi* Austin, 1989; from Malaysia; Malaysia-Peninsular.

The new species can be inserted before running-on the fifth couplet in the key by Austin (1989) as follows:

- a. Scutellum reticulate-rugose (Fig. 10 in Austin, 1989) or rugose-punctate; anterior margin of second metasomal tergite 2 with course longitudinal carinae, rest of second tergite reticulate-rugose (Fig. 6 in Austin, 1989); tegula brown or dark brown .....5
- b. Scutellum areolate-rugose (Fig. 5); second metasomal tergite 2 sparsely carinate entirely (Fig. 6); tegula yellow ..... *B. vuquangensis* sp. n.

*Buluka vuquangensis* Long, sp. n. (Figs 1-10)

**Material.** Holotype, ♀ (VNMN), Mic.1215, NC Vietnam: Ha Tinh, Vu Quang NP, forest, 04.X.2009, KD Long; paratype, 1♂ (VNMN), ibid. but 29.X.2009, KD Long.

**Description.** Holotype, ♀ (fig. 1). Body length 2.6 mm, fore wing length 2.6 mm, antenna 2.5 mm.

**Head.** Third antennal segment 1.2 times as long as fourth (11:9); seventh antennal segments 4.0 times longer than wide (8:2);

median width of face 0.7 times length of face and clypeus combined (11:16); mean face width 0.4 times head width (11:31); clypeus slightly concave; distance between tentorial pits 2.3 times distance between pits and eyes (7:3); in dorsal view, height of eyes 2.8 times as high as temple (14:5); in lateral view width of eye 1.3 times as long as temple (9:7); ocelli in very low

triangle, anterior tangent of posterior ocelli crossing anterior ocellus medially (fig. 3), POL 0.8 times as long as OOL; POL:Od:OOL= 5:2:6; distance between front and hind ocelli 0.25 times as long as OOL (1.5:6) (fig. 3). Face smooth, sparsely setose (fig. 4); frons, vertex and temple smooth.



*Figures 1-10. Buluka vuquangensis* sp. n.

1. Female (habitus); 2. Mesopleuron; 3. Head (dorsal view); 4. Head (frontal view); 5. Scutellum; 6. First and second metasomal tergites; 7. Hind coxa (dorsal view); 8. Propodeum (left side); 9. Head (frontal view, male); 10. Fore wing.

**Mesosoma.** Length of mesosoma 1.45 times as long as high (45:31); pronotal trough shiny, crenulate; mesopleuron reticulate-rugose dorso-anteriorly and ventrally; precoxal sulcus groove-like, wide and smooth (fig. 2); mesoscutum reticulate-rugose; in lateral view, scutellum convex, distinctly higher the level of mesoscutum; sutellar sulcus deep, with eight medial carinae (fig. 5); scutellum areolate-rugose; propodeum with medial carina, reticulate-rugose; propodeal spiracle rather small, round, surrounded by distinct carinae (fig. 8).

**Wings.** Fore wing (fig. 10), pterostigma 3.1 times as long as wide (22:7) and 1.1 times vein 1-R1 (22:20); parastigma 1.3 times longer vein 1-SR (4:3); vein r of fore wing arising after middle of pterostigma (fig. 10); vein r 0.7 times as long as vein 2-SR and 1.7 times vein 3-SR (r:2-SR:3-SR=5.7:3); vein 1-CU1 as long as cu-a and 0.4 times vein 2-CU1 (3:8); fore vein 2-SR+M as long as vein r and 1.25 times vein mcu (5:4). Hind wing: vein M+CU 0.8 times vein 1-M (12:15); M+CU:1-M:1r-m=12:15:3.

**Legs.** Hind coxa large, largely rugose but strongly transversely striate dorso-apically (Fig. 7). Length of hind femur:tibia:basitarsus:tarsus=32:41:19:44; length of hind femur, tibia and basitarsus 3.6, 5.9 and 4.7 times as long as their width, respectively; inner hind tibial spur 0.5 times as long as basitarsus (10:19).

**Metasoma.** Posterior rim of gaster not indented; first tergite with median smooth groove (fig. 6), 0.6 times as long as apical width (16:26), areolate-rugose; second metasomal suture comparatively wide, crenulate (fig. 6); third metasomal suture fused but more or less crenulated; second and basal half of third metasomal tergites with sparse longitudinal carinae, apical half of third tergite largely punctate.

**Colour.** Head, antennae yellow; palpi ivory; mesonotum black; fore and middle legs ivory, except telotarsus brownish; hind coxa black; hind trochanters and trochantellus ivory; hind femur yellow basally, dark brown apically; hind tibia and basitarsus ivory at extreme base, dark brown apically; hind second-fourth tarsus ivory;

telotarsus brown; hind spurs ivory; tegula yellow; pterostigma and vein 1-R1 yellowish brown; the rest veins whitish yellow; fore wing with large infuscated band beneath pterostigma, covering second submarginal cell and extending down to lower margin (fig. 10); area around vein 1-M basally, 1-CU1 and cu-a infuscated; two first metasoma; tergites yellow, third tergite black; ovipositor sheath dark brown.

**Etymology:** Named after the type locality: Vu Quang National Park.

**Host:** Unknown.

**Notes:** Male differs from female by moderate broad face, median width of face 0.8 times length of face and clypeus combined (13:17); (fig. 9) [face of female distinctly narrowed medially (fig. 4)]; scutellar sulcus with 7 carinae; fore wing with larger and darker brownish band; hind femur largely brown basally; first metasomal tergite yellow but dark brown at extreme apex.

*Buluka vuquangensis* is similar to *Buluka noyesi* Austin, 1989, from India but differs from the later by having scutellum areolate-rugose; second metasomal tergite with sparse longitudinal carinae entirely; in lateral view third metasomal tergite not indented above rim; head yellow (black in *noyesi*). The new species is also close to *Buluka townesi* Austin, 1989; from Malaysia but differs by face of female narrowed medially, mean face width 0.4 times head width; scutellum areolate-rugose; propodeal spiracle round, small; basitarsus black.

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**GHI NHẬN MỚI GIỐNG *Buluka* de Saeger (Hymenoptera: Braconidae: Microgastrinae) VÀ MÔ TẢ MỘT LOÀI MỚI CHO KHOA HỌC Ở VIỆT NAM**

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**TÓM TẮT**

*Buluka* de Saeger, 1948 là một trong các giống ong rất hiếm gặp thuộc phân họ Microgastrinae (Hymenoptera: Braconidae). Đây là lần đầu tiên giống *Buluka* được ghi nhận cho khu hệ của Việt Nam. Cho đến nay mới chỉ có 7 loài được ghi nhận từ khu hệ vùng Indo-Pacific và 1 loài từ khu hệ Afrotropical. Bài báo này mô tả một loài mới cho khoa học, *Buluka vuquangensis* Long, sp. n., từ khu hệ ong ký sinh của Việt Nam. Sự khác nhau của loài mới với loài *Buluka noyesi* Austin, 1989 của Ấn Độ và loài *B. townesi* Austin, 1989

của Malaysia đã được so sánh. Danh sách và phân bố của 8 loài đã biết thuộc giống *Buluka* cũng được trình bày trong bài báo.

Các loài thuộc giống *Buluka* có kích thước cơ thể nhỏ, chưa có thông tin về vật chủ của các loài thuộc giống này cũng như của loài mới từ khu hệ của Việt Nam, tuy nhiên, dựa theo thông tin vật chủ của nhiều loài khác thuộc phân họ Microgastrinae, có khả năng vật chủ của loài mới này là sâu non các loài côn trùng thuộc họ cánh vảy.

*Từ khóa:* Braconidae, Microgastrinae, *Buluka*, ghi nhận mới, loài mới, Việt Nam.

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