

[研究文章 Research Article]

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Biological Notes on the Colony of *Brachyponera obscurans* (Hymenoptera: Formicidae) in Macau

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Abstract. The microhabitat surrounding the nest of *Brachyponera obscurans* (Walker, 1859) was recorded, and also this nest of *B. obscurans* was discovered that near the foraging area of termites by field observation in Hac Sa Reservoir, Macau.

Key words: Ponerinae, *Macrotermes barneyi*, microhabitat, interaction

Introduction

Brachyponera Emery, 1900, a widely distributed genus in the Old World, is a group of specialized predator preying on arthropods in many types of habitats (e.g. forest and urban environment). Up to date, 24 species of *Brachyponera* have been described (AntCat, 2017) in the world. This genus is belonged to subfamily Ponerinae, and also many ponerines (e.g. *Anochetus* Mayr, 1861 and *Odontomachus* Latreille, 1804) are commonly found near or in the termites nest (Shattuck & Slipinska, 2012). The rotten wood modified by termites form a good nesting site and microhabitat for many species (i.e. symphile and ant) (Wilson, 1971). Although most ponerines exhibit extremely predatory behavior (Hölldobler & Wilson, 1990), these ponerines are seemed to live peacefully next to termites. In the present study, the relative location between the nest of *B. obscurans* and the foraging area of termites (*Macrotermes barneyi*), whose nest is separate type, was recorded. The discussion on details of microhabitats and interaction of them are also provided to enhance our knowledge of natural history.

Material and methods

The leaf litter around the termites nest was collected by Winkler's bag in the morning on January 9th 2017. The photographs were taken using Olympus Tough TG-3 Camera with circular LED flash. All specimens are point mounted and then examined under the microscope Leica M205C. The voucher specimens were deposited in the Insect Biodiversity and Biogeography Laboratory at the University of Hong Kong.

Results

Brachyponera obscurans (Walker, 1859)

(Figs. 3–4)

Diagnosis. *Brachyponera obscurans* can be distinguished by small body size (total length ca. 4 mm); small eye (maximum diameter with ca. 10 facets); and the propodeum without distinct hairs. To identify ant species, I additionally examined the pictures of *B. obscurans* (CASENT0902495, photted by Will Ericson) on Antweb.org, 2017.

Notes on the microhabitat and nest. The specimens of *Brachyponera obscurans* were collected within the foraging area of *M. barneyi* (Fig. 1) in the secondary forest of Hac Sa Reservoir (Macau), also the termites occupying whole wood. About four hundreds *B. obscurans* individuals were found within a single colony, which was covered by abundant rotten wood litter and leaf litter upon with highly moist soil. After photographing, I collected nearly six liter volume of leaf litter under the rotten wood, then extracting within seven days by using Winkler extractor to collect more cryptobiosis species. However, there is no more ant species collected

within the limited sampling duration. The main specimens included members of beetle (Coleoptera), springtail (Entognatha), woodlouse (Oniscidea), whereas *B. obscurans* was the only ant species discovered.



Figures 1–4. 1. The rotten wood (A: the nest of termites *Macrotermes barneyi* B: the nest of *Brachyponera obscurans* under the leaf litter). 2. The super soldier of *M. barneyi*. 3. Worker of *B. obscurans*. 4. The soldier of *M. barneyi* and the worker of *B. obscurans*.

Discussion

Current knowledge about interaction between ants and termites is poorly known. Oberst *et al.* (2017) recently found that termites are capable to avoid the predation of ants through detecting the vibration of ant footsteps. In our observation, *Brachyponera obscurans* and *Macrotermes barneyi* share overlapping habitat without interspecific conflict in our observation, so I speculates that *M. barneyi* is also capable to sense and avoid the ants. In addition, that there were six ant species found in the same site by hand collecting but only single species was extracted in a particular area is quite rare. To enhance our knowledge of the interaction between termites and ant community, the further investigate and sampling effort is needed.

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黑隱短針蟻巢穴之澳門野外觀察（膜翅目：蟻科）

梁志文

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摘要: 黑隱短針蟻 *Brachyponera obscurans* (Walker, 1859) 巢穴附近的微棲地記述，以及發現巢穴鄰近白蟻的覓食區域在澳門黑沙水庫。

關鍵詞: 針蟻亞科、黃翅大白蟻、微棲地、互動