
Report

A preliminary report on functional morphology of 2 pygmy grasshopper species (Orthoptera: Tetrigidae)

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Abstract

6 specimens of pygmy grasshoppers (Orthoptera: Tetrigidae) from Sabah, Malaysia, were examined, and found that small plants were attached to the body surface. This is probably caused by tuberculi, microspines, and punctures on the surface of their bodies.

Key words: Tetrigidae, *Discotettix belzebth*, *Tripetalocera* sp., functional morphology

Pygmy grasshoppers (Orthoptera: Tetrigidae) habit various environments and feed on the detritus of plants, plant parts, mosses, and similar materials. Each species or group of tetrigids lives in a specific environment (e.g. riverside, arid ground, wetland, forest floor, mossy tree trunk). Tetrigids often exhibit mimesis, resembling other natural objects such as stones, lichens, leaves, twigs and spines (Rentz, 1996). Many tetrigids camouflage themselves on the ground or tree trunks by using their body colours and/or their shapes.

Discotettix belzebth (Audinet-Serville, 1839) (Fig. 1) is a forest species usually found on mossy tree trunks. We examined 6 specimens of this species collected from Kionsom, Kota Kinabalu, Sabah, collected on 21st May, 2000 and 21st August, 2000. Except for the hind tibia and insides of the hind femora, we found that the dorsal and lateral sides are covered with small plants that might belong to either Bryophyte or Algae (Fig. 2). The pronotal surface is densely punctured like a mesh and there are many microspines on the surfaces of pronotum and legs (Fig. 3). The surfaces of hind tibia and insides of hind femora, however, are smooth and lack punctures and microspines. Therefore, these vestitures could function in gathering the small plants.

We also found the similar case with *Tripetalocera* sp. (Fig. 4). This species can also be found on mossy

trunks. We examined 2 specimens collected from Kampung Nalumad, Kinabalu Park, Sabah (collected on 12nd March, 2000) and Imbak Valley, Sabah (5th July, 2000). Most parts of the body are covered with small plants as with *D. belzebth* (Fig. 5). The pronotal surface is densely punctured similar to *D. belzebth*. The surfaces of tarsi and the insides of hind femora are smooth and not covered with plants.

In tropical rainforests many trees are covered with moss. Therefore, if trunk dwellers camouflage themselves to resemble mossy trunks, the disguise can play a great role for them to escape from natural enemies, especially since both of these species usually move slowly and cannot jump well. The punctures and small spines on the surfaces of both may also function in helping them gather small plants.

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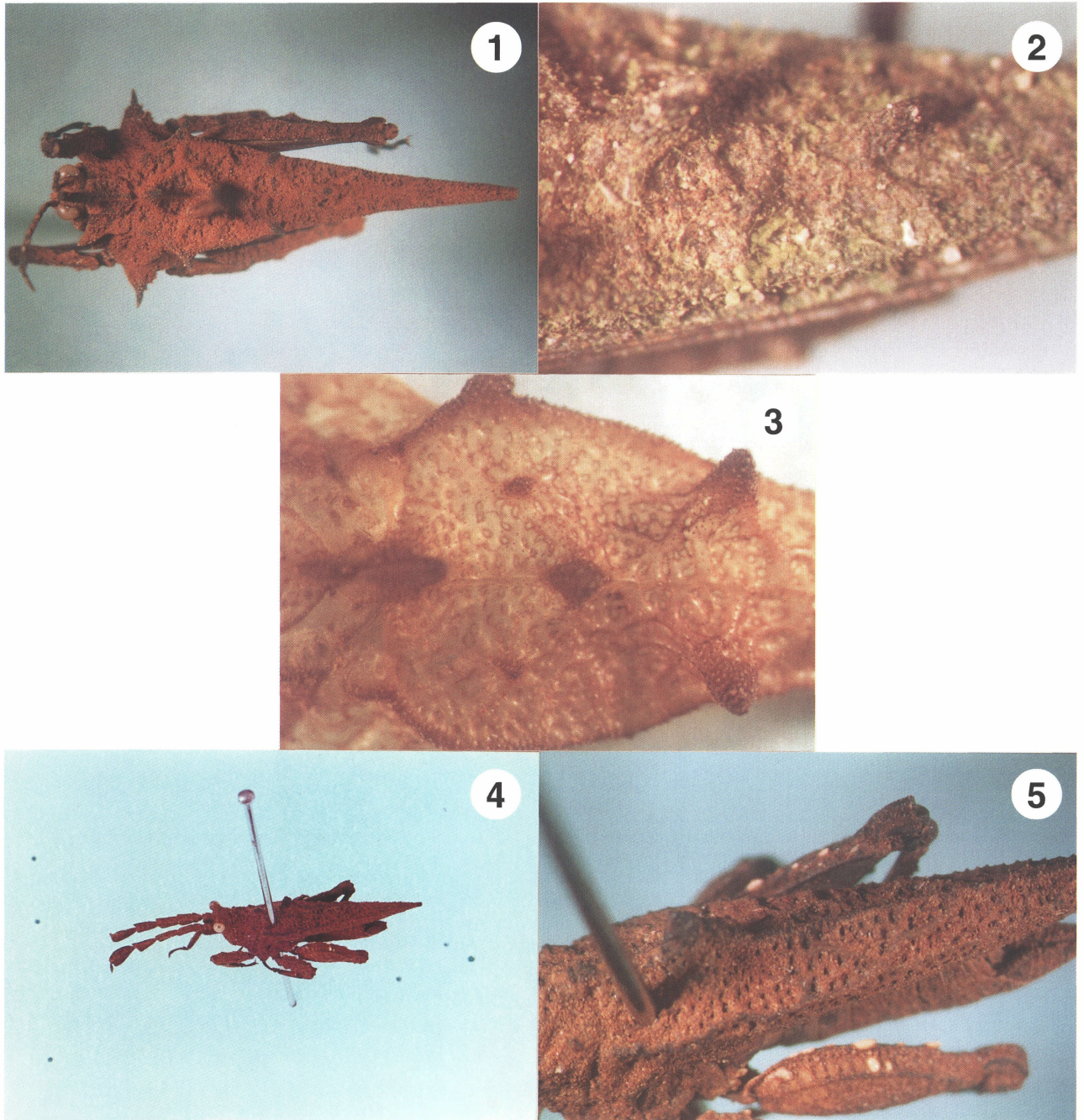


Fig. 1. *Discotettix belzebuth* (Audinet-Serville, 1839), dorsal view.

Fig. 2. Pronotal surface of *D. belzebuth*, dorsal view.

Fig. 3. Pronotum of *D. belzebuth*, dissected and cleaned, dorsal view.

Fig. 4. *Tripetalocera* sp., dorso-lateral view.

Fig. 5. Pronotal surface of *Tripetalocera* sp., dorso-lateral view.

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