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Short Communication

A Teratological Record of *Spilostethus pandurus* (Hemiptera, Heteroptera, Lygaeidae) from the Occupied Palestinian Territories, West Bank

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Abstract

A teratological case of the Seed Bug (*Spilostethus pandurus*) is recorded from the Mar Saba area in the Bethlehem District, Palestine. This anomaly appears on the pronotum, scutellum, corium, and the membrane part of the specimen, which seems to occur less often than antennal anomalies in true bugs (Heteroptera).

Keywords

Malformation, anomaly, true bug, West Bank, Palestine.

Introduction

The Milkweed Bug (*Spilostethus pandurus*) is widely distributed in tropical and subtropical areas (Awad, *et al*., 2013). In some countries, it is considered as a serious pest on the seeds ofsome plants with highly economic important such as in Egypt where at times it causes serious damage (Meguid, *et al*., 2013; Kugelberg, 1973). It infests many crops including sunflower seeds, watermelon seeds, squash seeds, cantaloupe seeds, pea nuts, cotton, sorghum, sesame, lobia, tomato, eggplant, sugarcane, okra, pecans, whole kidney seeds, wheat and cabbage (Thangavelu, 1979). Teratology can be exhibited as a simple change in structure (morphology) (Faúndez and Rider, 2017; Faúndez and Rocca, 2016). In other cases, it can be more complex especially when there is an extra part in the insect's body such as having an extra segment of the antennas (Burke, *et al*., 2018) or compound eyes (Clark and Neto, 2010). Morphological anomalies appear occasionally in insects especially the True Bugs (Heteroptera) group, and most records focused on the antenna and other structures including claws (Asiain and Márquez 2009; Carvajal, *et al*., 2019; Taszakowski and Kaszyca-Taszakowska, 2020).

The Heterpotera fauna were collected from Mar Saba area (31°42'16.6"N 35°19'51.5"E), the Bethlehem District (West Bank) on the 20th of Feb. 2022 by a member of the Palestine Museum of Natural History (PMNH) and Biodiversity Center research team. A population of the species *Spilostethus pandurus* was collected during the survey. One specimen of the Seed Bug *Spilostethus pandurus* was found to have morphological malformations (Figure 1). This appeared on the pronotum as wrinkled aberrance from the middle and affected mainly the posterior margin which was indented anteriorly. The scutellum showed shrinkage from one side, and the left clavus showed huge shrinkage (see Figure 1: both normal specimen A and the malformation specimen B).

Solbreck and Anderson (1989) described short-winged individuals of Spilostethus pandurus from laboratory cultures on Cyprus. The wings were about the length of the scutellum, but the flight muscles were fully developed. Crossing data showed that shortwing-edness is determined by a recessive gene. The findings could be explained as early steps in the evolution of wing reduction.

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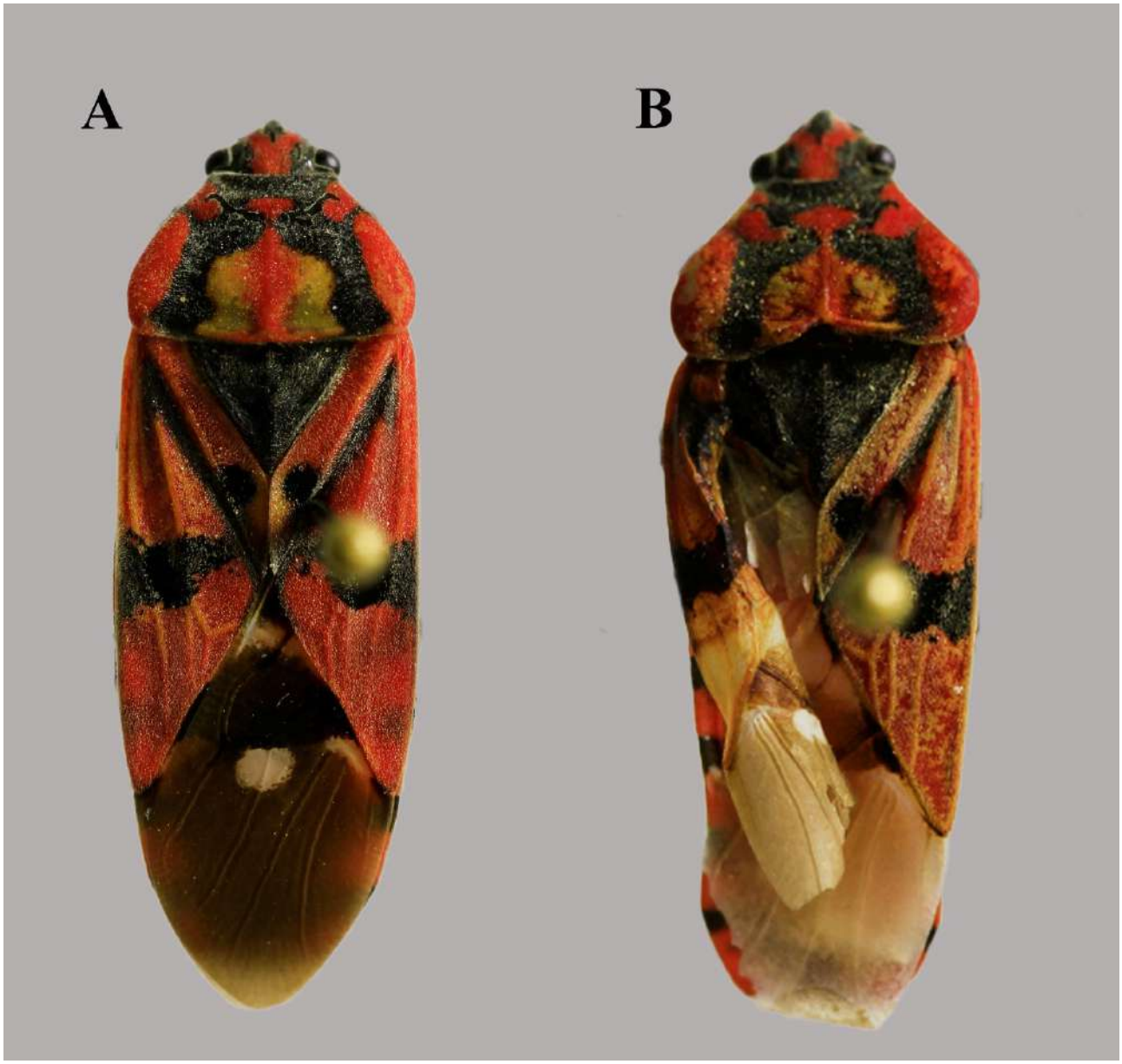

Figure 1: Dorsal view of Spilostethus pandurus; A: Normal specimen, B: Malformed specimen.

In general, anomalies of the pronotum, scutellum, and clavus seem to occur less often than antennal anomalies in true bugs (Heteroptera). A record from Palestine for the same case of malformation was made for The Southern Green Stink Bug (*Nezara viridula*) (Carvajal, *et al*., 2019; Steinhaus and Zeikus, 1968; Taszakowski and KaszycaTaszakowska, 2020; Handal, 2021). Some recent studies suggest that global warming will be a force actor for abnormalities in insects and could show malformation in some of them. This effect should be studied and observed more extensively to understand the effect of climate change on insect fauna and its morphological changes (Polidori, *et al*., 2020; McCauley, *et al*., 2018; Nijhout and Emlen, 1998). Our suggestion is that the cause of an aberrant specimen may incur some physical damage to the nymph before the final molt or accident during the molding process.

Bernal and Romo (2018) described four teratological cases in Lygaeoidea (including *Spilostethus pandurus*. They concluded that the simple unilateral oligomery was more likely due to the loss of one of four antennal segments in an early immature stage.

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