FIELD OBSERVATIONS ON THE BLISTER BEETLE, *MELOE PROSCARABAEUS* L. (COLEOPTERA: MELOIDAE), A THREAT TO FABA BEAN IN EL–FARAFRA OASIS, WESTERN DESERT, EGYPT.

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INTRODUCTION

Blister beetles are belonging to the family Meloidae (Coleoptera), which includes about 80 genera and three subfamilies (Bologna, 1991; Ruiz & Avila, 1993; Whitehead, 1999). All occur in the old world with two genera extending in northern America. Blister beetles get their common name from the irritating reaction of their body fluids with animal skin or delicate membranes. These fluids contain cantharidin, a potent blistering agent. Adult beetles are phytophagous, feeding especially on plants of the families Amaranthaceae, Compositae, Leguminosae and Solanaceae (Selander & Fasulo, 2000). Most adults eat only floral parts, but some, particularly those of *Epicuta* spp., eat leaves as well. Larvae of the most genera are specialized predators, enter the nests of wild bees, and consume both immature bees and the provisions of one or more cells. Larvae of *Epicuta* spp., prey on the eggs of acridid grasshoppers (Selander, 1981). Alfieri (1976) recorded 9 species belonging to the genus *Meloe* family Meloidae from different localities of Egypt.

The present paper deals with field observations on occurrence of the blister beetle, *Meloe proscarabaeus* L. (Coleoptera: Meloidae) in faba bean fields, its diurnal activity, feeding habits, crop damage, and host plants.

MATERIAL AND METHODES

During a recent survey of insects injurious to legume crops cultivated in

winter season of 2002 in El-Farafra oasis, western desert of Egypt, adults of the blister beetle were noticed with heavy numbers feeding on young seedlings of faba bean (*Vicia faba* L.). Further inspection of faba bean plantations revealed wider areas were invaded with these beetles. With season progress and development of faba bean plants, beetles feed on leaves, flowers and plant stems (Fig. 1 a, b, c, d).

Specimens of beetles collected from faba bean fields (males & females) were preserved in 90 % ethanol and sent to Prof. Hassan H. Fadl (Ain Shams University), Dr. Mahmoud S. Abdel-Dayem (Cairo University Collection) and to Dr. Whitehead (Worcestershine WR 10 3EH, UK) in July 2004, and to Dr. Marco Bologna, Universita Degli, Italy in December 2004, for identification. The first two authors identified our specimens as *Meloe proscarabaeus* L. and later we received letters from the other authors who confirmed identification of the specimens as *Melo proscarabaeus* Linnaeus, 1758 (Coleoptera: Meloidae). This was considered the first record of this species as an insect pest feeding on faba bean plants in El-Farafra oasis (Fig. 2 a & b). Alfieri (1976) recorded 9 species of Meloidae from different desert areas of Cairo vicinity and Luxor. *Meloe proscarabaeus* L. was also firstly recorded in India by Anand (1978).

RESULTS AND DISCUSSION

Field survey of insects feeding on winter crops in El-Farfra oasis showed noticeable numbers of the blister beetle, *Meloe proscrabaeus* feeding on the leaves and flowers of faba bean (Vicia *faba* L.), peas (*Pisium sativum* L.), Egyptian berseem (*Trifolium alexandrinum*), alfalfa (*Medicago sativa*), wheat (*Triticium aestivum*), onion (*Allium cepa* L.) and *Meliolotus indica*, a wild weed. Several of the Florida blister beetles feed on cultivated plants and often damage alfalfa, beat, potato, tomato peanuts, soybeans, carlesweed (Pigweed), puncturevine (goothead), and many other species of plants both wild and domestic (Ward, 1985; Selander & Fasulo, 2000).

Most of the beetles collected from the fields were found feeding on the leaves and flowers of faba bean, peas, alfalfa, wheat, onion and wild weeds; the most injured crop was faba bean.

Adults attacking young seedlings above soil surface, completely eating and destroying them; this demanded reseeding the crop. Foliage and flowers of the plants were also contaminated with cantharidin fluid secreted by the adults which burns and kills leaves and flowers. Moreover, beetles feeding cause defoliation (Fig.3). Cantharidin is a stable chemical and long-term health threat to nearly all livestock, particularly cows and other mammals that feed on contaminated alfalfa hay (Ward, 1958).

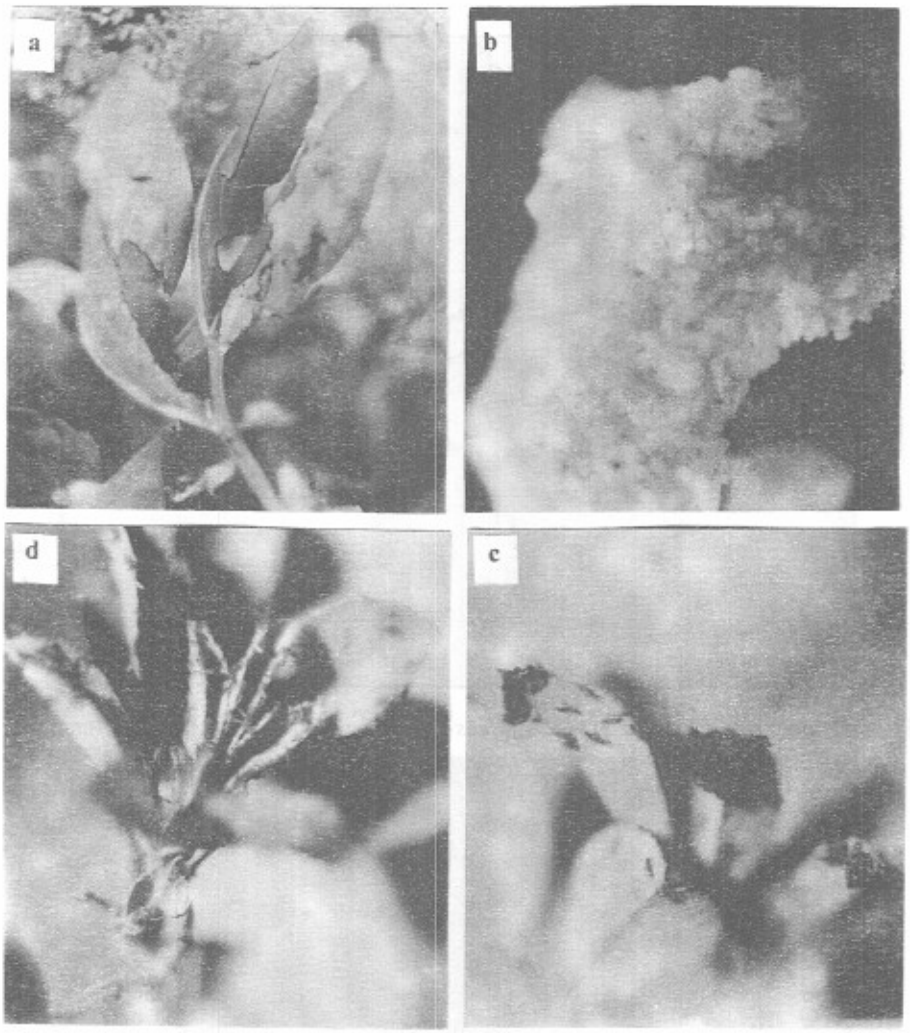

Fig. 1: Field observation on the blister beetle, *Meloe proscarabaeus*L. Feeding on faba bean. a: plant leaves damaged by beetle feeding; b: cluster of eggs (about 5000 eggs/cluster); c: eggs on faba bean leaves; d: newly hatched larvae (tringulin larvae).

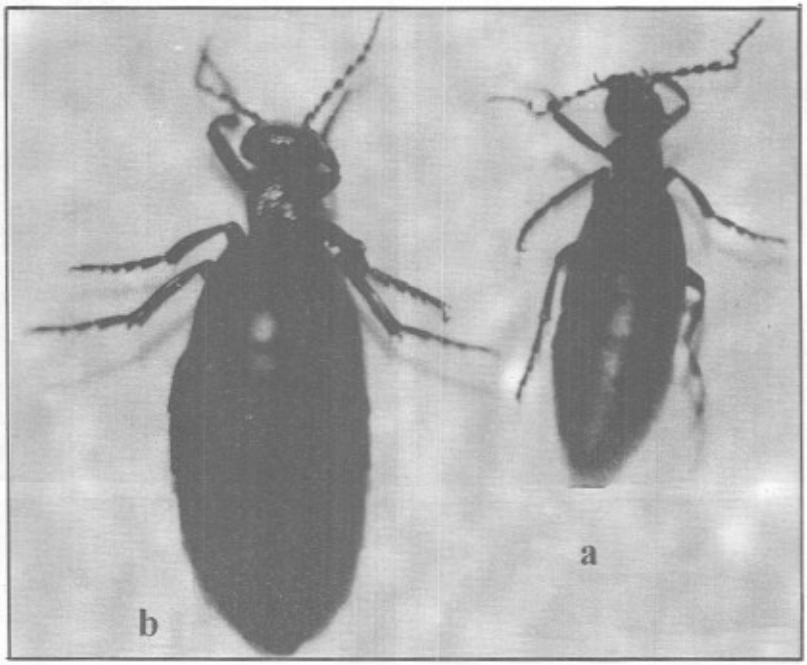

Fig. 2: Blister beetle, *Meloe proscarabaeus* L. adults. a: adult male; b: adult female.

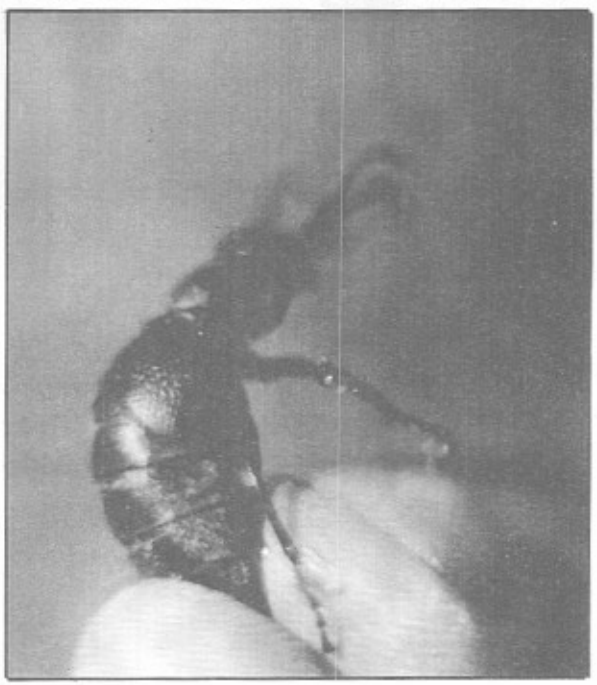

Fig. 3: Cantharidin fluid excreted by adult beetles (females and males).

SUMMARY

The blister beetle, *Meloe proscarabaeus* L. (Coleoptera: Meloidae) was recorded for the first time as a serious insect pest attacking winter legumes, particularly faba bean (*Vicia faba* L.) in El-Farafra oasis, western desert of Egypt. Beans, peas, alfalfa, Egyptian clover, wheat, onion and the wild weed, *Meliolotus indica* L. were also recorded as host plants for this species. Adults are phytophagous feeding on plant foliage and flowers and under the stress of high population, plants may suffer death. Beetles occurred from early as November until late May. During swarming and feeding, beetles secrete cantharidin fluid, a potent blister agent and long-term health threat to nearly all livestock feeding on plants hay. Field observations on insect behaviour, and crop damage were briefly explained.

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