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A Note on the Incidence of Potato Tuber Moth, *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae), on Eggplant in Khartoum State, Sudan

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Abstract: An outbreak of larvae of a devastating moth was observed in an eggplant *(Solanum melongena* L.) field at Elselate Scheme, Khartoum State, Sudan, during April 2007, with symptoms such as foliage-mining, leaf defoliation and fruit burrowing under the calyx and through the fruit skin. The pest incidence was sufficient to cause significant yield loss in most fields. Larvae of the pest were collected and reared in the laboratory in Shambat Research Station. Adult moths of the order Lepidoptera emerged. Specimens of the pest and photographs of the symptoms were sent to the Finnish Museum of Natural History, University of Helsinki, Finland, for identification. The pest was identified as *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae) which had already been reported in Sudan as a pest on potato and tomato.

Key words: Potato; tuber moth; eggplant, Khartoum; Sudan

The potato tuber moth *Phthorimaea operculella* (Zeller) is an oligophagous pest of some members of the family Solanaceae including potato, eggplant, tobacco and tomato (Das *et al*. 2007). It was first recorded as a pest of potato in 1954 in America; later, it was identified worldwide as a major pest of potato both in the field and the stores (Smit *et al*. 1998). In the Sudan, it was recorded from infested potato imported from Egypt, and in a few years it attained damaging level as a pest of potato at the producing areas in Khartoum Province (Pollard 1955). Musa A. Ahmed in 1991 and 1995 (Personal communication) identified the potato tuber moth as a serious pest of tomato in central Sudan. Musa (2000) found that the potato tuber moth caused 3%-30% reduction in tomato yield in Gezira and Damazine but was absent in tomato grown near potato fields in Khartoum State.

In April 2007, a high larval infestation was observed in eggplant *(Solanum melongena* L.) fields at Elselate Scheme, Khartoum State,

Sudan (Fig.1). The larvae were collected and reared under laboratory conditions at Shambat Research Station. The specimens of the microlepidoptran adults and pupae were kept in a small box, and the larvae were kept in ethanol 70% and 1% glycerin. The specimens together with photographs of damage symptoms on fruits and leaves were sent to the Finnish Museum of Natural History, University of Helsinki, Finland, for identification. The specimens were identified as *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae).

The symptoms of damage on eggplant leaves were similar to those on potato, caused by foliage-mining larvae creating transparent leaf blisters. Late in the season, all the leaves were severely infested and shed (Fig. 2). The larvae entered the fruit by burrowing under the calyx and through the fruit skin, and the infested fruit can be identified by mounds of frass with a fine web at the entrance point of the larva (Fig. 3). The branches and stems were also attacked (Fig. 4). Severe foliar infestation with tuber moth larvae was observed at Elselate Scheme (Fig. 1), Elailafoun and Elbagair, which destroyed the plants and caused significant yield loss.

In a survey, carried out during June and August 2009, the eggplant fields in Elselate Scheme, Elbagair and Elgaily in Khartoum State and Abu Asher in Gezira State were infested with the potato tuber moth, but there was no infestation in the fields at Elfaki Hashim area. This is the first report on the potato tuber moth as a pest of eggplant in Khartoum State, Sudan.

Fig. 1. Eggplant field before (Left) and after (Right) the build up of tuber moth infestation at Elselate Scheme, Khartoum North, Sudan, (season 2007)

Fig. 2. Damage of tuber moth in eggplant leaves

Fig. 3. Damage in eggplant fruit

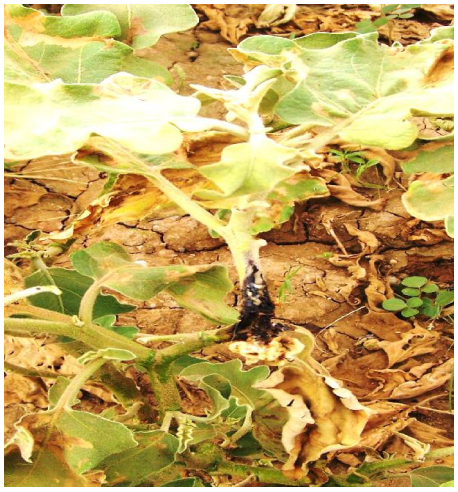

Fig. 4. Damage in eggplant stem

REFERENCES

Das, P.D.; Raina, R.; Prasad, A. R. and Sen, A. (2007). lectroantennogram responses of the potato tuber moth, *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae), to plant volatiles. *Journal of Bioscience* 32 (2), 339-349.

Musa, A.O. (2000). *Potato Tuber Moth*, *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae), *as a pest of tomato in Sudan*. M. Sc. thesis, Faculty of Agriculture, University of Khartoum, Shambat, Sudan.

Pollard, D.G. (1955). The Insect Pests of Vegetable in the Sudan. Ministry of Agriculture, Sudan, 72 p.

Smit, N.E.J.M.; Braun, A.R.; Lagnaaoui, A. and Cisneros, F. (1998). Integrated pest management of potato tuber moth (*Phthorimaea operculella*) and sweet potato weevils (*Cylas* spp.). In: *Proceedings of 3rd International Conference of Tropical Entomology 1994* (R.K. Saini Edt.), Nairobi, Kenya, pp. 209-225.

ظهور فراشة درنات البطاطس في محصول الباذنجان بولاية الخرطوم، السودان

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المستخلص: لوحظت إصابة وبائية بيرقات فراشة على محصول الباذنجان بمشروع السليت ، ولاية الخرطوم ، السودان ، في أبريل 2007 . ظهرت أعراض الإصابة على هيئة أنفاق فى الأوراق وأدت إلى جفافها وتساقطها وكذلك علي الثمار بمنطقة الكأس وتحت سطح الثمرة . أدت الإصابة بهذه الآفة إلى نقص معنوي فى الإنتاجية بمعظم المزارع . جمعت اليرقات وتمت تربيتها بالمختبر في محطة بحوث شمبات ، وخرجت فراشات تتبع لرتبة حرشفية الأجنحة . أرسلت عينات من الحشرة الكاملة واليرقات والحوريات وصور أوراق وثمار الباذنجان المصابة إلى متحف فنلندا للتاريخ الطبيعي بجامعة هلسنكي ، حيث صنفت الحشرة بفراشة درنات البطاطس (Zeller) *Phthorimaea operculella* . وقد سجلت سابقا كآفة مهمة على محصولي البطاطس والطماطم بالسودان .