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Record in Italy of *Phaedon brassicae* Baly (Coleoptera Chrysomelidae Chrysomelinae) (*)

Abstract - The Asiatic Chrysomelidae *Phaedon brassicae* Baly is recorded for the first time in Italy. Introduced by plant trade, at present the insect has a limited diffusion. Being poliphagous and a pest on Brassicaceae in the native country, it could be a problem for various crops also in Europe.

Riassunto - *Ritrovamento di* Phaedon brassicae *Baly (Coleoptera Chrysomelidae Chrysomelinae) in Italia.*
Viene segnalata la presenza di *Phaedon brassicae* Baly, Crisomelide di origine asiatica, introdotto in Italia con il commercio di piante. La distribuzione al momento è limitata, ma l'insetto, polifago e dannoso nei Paesi d'origine sulle brassicacee, potrebbe risultare un problema per diverse colture anche in Europa.

Key words: new record, Brassicaceae, Chrysomelidae, *Cardamine hirsuta* L., *Phaedon brassicae*.

Phaedon Dahl (Coleoptera Chrysomelidae Chrysomelinae) is a cosmopolitan genus. In the Palearctic region 35 species are described, 12 are present in western Europe, 4 are recorded in Italy: *P. armoraciae* L., *P. cochleariae* F., *P. laevigatus* Duftschmid and *P. salicinus* Herr., widely described by Daccordi & Lavarini (1990). Except for the last one, limited to the Alps, they are spread all over Italy. Only *P. cochleariae* with *P. armoraciae* are pests of cabbage, rape and mustard in Europe. They live in cool temperate climate, in fact they are more common in northern regions while in the south they are present at high altitude (Daccordi & Lavarini, op.cit.).

During surveys in plant nurseries that import fresh plants from Asia, *Phaedon brassicae* Baly was recorded, on different plants, for the first time in Italy; it is present in China, Japan, Taiwan, Vietnam, where it causes economical damage to *Brassica* spp. crops. It colonize *Allium cepa* L., *Beta vulgaris* L., *Brassica chinensis* L., *Capsella bursapastoris* Med., *Chrysanthemum coronarium* L., *Daucus carota* L., *Lactuca sativa* L., *Raphanus sativum* L. and *Rorippa atrovirens* Howi & Hara (Gressit & Kimoto, 1963).

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Many adults were collected in different years in Parabiago (near Milano), on bonsai recently imported. In 2003 in greenhouses, weeds under benches were examined; larvae and adults were collected on a spontaneous mustard herb, *Cardamine hirsuta* L.. Larvae were collected exclusively inside the greenhouse, adults also outside.

Samples collected on imported bonsai:

Adults: 30/10/2000 on *Zelkova serrata* Mak. and on *Ficus retusa* L.; 4/09/2001 on *Bambusa ventricosa* McClure; 6/1/2003 on *Pinus pentaphylla* Mayr..

Samples collected on *Cardamine hirsuta* L. (Brassicaceae)

Larvae: 1/04/2003; 10/04/2003; 14/04/2003.

Adults: in greenhouses 28/01/2003; in the field 18/06/2003; 30/07/2003.

Although the first specimen were collected on different plant bonsai, it is obvious that they were occasional hosts, as the insect was observed in trophic activity only on the spontaneous plant.

The species could be introduced by colonization of weeds growing in pots or by adults hidden in the pot earth.

NOTES ON MORPHOLOGY AND BIOLOGY

Phaedon brassicae, ovoidal, can be distinguished from the roundish *P. laevigatus* and it differs from the other three species reported in Italy for the absence of the fine elitral puncture-rows (Gressit & Kimoto, op. cit.; Daccordi & Lavarini, op. cit.).

Mature larvae (body lenght 4-5 mm) live, close to the ground, on the upper leaf surface that is perforated by feeding beetles. They feed on central leaves of Brassicaceae, more intensely in the dark. At 25°C, r.h. 65-75% and photoperiod 12L:12D the larval stage lasts 10 days (Guan *et al.*, 1965).

Pupae are 5 mm long, bright yellow colored. The insect pupates and lays eggs on the lower leaf surface (Liu Mei *et al.*, 1999). Also adults (body lenght: male 3 mm, female 5 mm) are lucifugous. They have crepuscular-nocturnal habits and during the day they stay still on the lower leaf surface. When disturbed, they exhibited thanatosis. In the field they colonize closely-planted *C. hirsuta*. Mating was observed at the end of July.

In Southern China *P. brassicae* is a serious pest of horticultural crops, it colonize different plants, such as *Nasturtium officinale* R.Br., *Brassica alboglabra* Bailey, *B. juncea* var. *foliosa* Bailey, *B. campestris chinensis* var. *utilis* Tsen & Lee and var. *communis* Tsen & Lee, *Raphanus sativus* L. (Liu Mei *et al.*, op. cit.). *B. alboglabra* inhibits the development of the phytophagous insect, which lays less eggs, has a slower development and an inferior survival rate. Li WeiFeng *et al.* (2000) noticed that *Brassica pechinensis* Rupr. is particularly appreciated by the insect.

As far as control is concerned, *P. brassicae* resulted susceptible to A_{24} strain of *Steinernema carpocapsae*: after 72 hours from the treatment with a high dosage, it causes a mortality between 56 and 100% (Pan KeXin *et al.*, 1999). Also YBT-0618 strain of *Bacillus thuringiensis* added to an artificial diet, made of caseine, leaves dust of *Brassica chinensis* L. and saccharose, resulted efficacious (Dulmage *et al.*, 1970; Liu Mei *et al.*, op. cit.).

CONCLUSIONS

Finding of numerous adults in consecutive years and in different seasons suggests a continuous introduction from Asiatic countries. Adults and larvae were found feeding only on *Cardamine hirsuta*.

Colonizations by larvae and adults of spontaneous plants inside, but mainly outside the greenhouse, prove that the insect could settle in our country, causing economic damages to the crops. Overwintering adults are difficult to find in the ground and so it is impossible to affirm with certainty that the insect is acclimatized.

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