

HOST PLANTS OF *LIRIOMYZA BRASSICAE*, WITH  
RECORDS OF THEIR PARASITES FROM SOUTH FLORIDA  
(DIPTERA: AGROMYZIDAE)<sup>1</sup>

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INTRODUCTION

The cosmopolitan cruciferous leaf miner, *Liriomyza brassicae* (Riley), was first described as *Oscinis brassicae* by Riley (1884). Frick (1952b) revised the species as *Liriomyza brassicae* (Riley).

Frick (1957) stated, "In North America, *brassicae* is the only known miner of nasturtium and various species in the family Cruciferae. I have reared it from several species of mustard including tumbling mustard (*Sisymbrium altissimum* L.), wild radish, Chinese winter radish, cauliflower, and turnip in California and Washington. . . ." Nowakowski (1962) remarked that *L. brassicae* seems to occur in central Europe only on weeds and cultivated plants of the following families: Cruciferae, Resedaceae, Capparidaceae, and Tropaeolaceae. Nowakowski stated that *brassicae* avoids the autochthonic cruciferous plants, as for example, the genera *Cardamine* L., *Dentaria* L., *Rorippa* Scop., *Turritis* L., *Arabis* L., *Alyssum* L., *Lunaria* L., and others.

Spencer (1964) reported *L. brassicae* as a cosmopolitan, oligophagous leaf miner occurring on many genera of Cruciferae and also infesting a closely related family, Capparidaceae. He stated that in 1962 a species was reported from Salisbury, Southern Rhodesia infesting cabbage and *Pisum*. Subsequent determinations by Spencer proved this species to be without doubt *L. brassicae*.

Frick (1952a) described *L. hawaiiensis* as a leaf miner in Hawaii and Frick (1953) reported the host plants of *hawaiiensis* as follows: *Gynandropsis pentaphylla* D. C., *Cleome*, cauliflower, cabbage, Chinese cabbage, and *Nasturtium* sp. Spencer (1963) synonymized *L. hawaiiensis* Frick as *L. brassicae*. Spencer stated that he had seen paratypes of *L. hawaiiensis* bred from cabbage, nasturtium, and daikon. Frick (1965) listed *Phytomyza mitis* Curran as another synonym of *L. brassicae*.

*L. brassicae* is not the only leaf miner infesting cruciferous plants in the United States. Oatman (1959) reported *L. munda* Frick, misidentified as *L. pictella* (Thomson), reared from cruciferous plants in California. Stegmaier (1966) cited rearings of *L. munda* from several cruciferous plants in Florida.

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## PREVIOUS HOST PLANT RECORDS AND DISTRIBUTIONS

## Capparidaceae

- Cleome graveolens* Rafin., spiderflower, ..... Singapore; Philippine Islands; Ceylon. (Spencer 1961a).  
*Cleome* sp. .... Hawaii (Frick 1952a, as *L. hawaiiensis*).  
*Gyandropsis pentaphylla* D. C. .... Hawaii (Frick 1952a, as *L. hawaiiensis*)  
*Gynandropsis speciosa* D. C., spiderflowers ..... Colombo, Ceylon (Spencer 1961a).

## Cruciferae

- Brassica arvensis* (L.) B.S.P. .... United States (Frick 1959). The plant is known as white mustard and the specific name is a synonym of *Brassica kaber* (D.C.) L. C. Wheeler. Another common name for the plant is charlock.  
*Brassica campestris* L., bird rape. .... United States (Frick 1959).  
*Brassica inconspicuum* (S. Wats.), wormseed-mustard or wild wallflower. .... United States (Frick 1959).  
*Brassica napus* L., rape. .... United States (Frick 1959).  
*Brassica nigra* (L.) Koch., black mustard. .... United States (Frick 1959).  
*Brassica oleracea* L. var. *botrytis* L., cauliflower or broccoli. .... United States (Frick 1959).  
*Brassica oleracea* L. var. *capitata* L., cabbage, ..... Japan, (Sasakawa 1961).  
*Brassica rapa* L., turnip. .... United States (Frick 1959); Africa (Spencer 1961a, 1961b).  
*Brassica* sp. .... French West Africa (Spencer 1959).  
*Crucifera* sp. .... Bambey, Senegal (Spencer 1959).

## Cruciferae

- Radicula palustris* (L.) Moench., yellow water-cress or marsh-cress. .... United States (Frick 1959).  
*Raphanus sativus* L., garden radish ..... United States (Frick 1959).  
*Raphanus sativus* L. *acanthiormis* Makino. .... Japan (Sasakawa 1961).  
*Sisymbrium altissimum* L., hedgemustard ..... United States (Frick 1959).

## Leguminosae

- Pisum* sp., garden peas. .... Southern Rhodesia (Spencer 1964).

## Tropaeolaceae

- Tropaeolum majus* L., garden nasturtium. .... Pretoria, South Africa (Spencer 1959).

*Tropaeolum* sp., garden nasturtium. .... Manitoba, Canada; United States (Frick 1959); Africa (Spencer 1961b). Nowakowski (1962) established the following data: “. . . *Tropaeolum* L. which attracts miners of the Cruciferae, e.g. *Liriomyza brassicae* (Ril.), contains myrosins and mustard oil glucosides so characteristic for cruciferous plants (cf. Buhr, 1937).”

OTHER REARING CITATIONS

- Cabbage. .... Hawaii (Frick 1952a, as *L. hawaiiensis*); Salisbury, Southern Rhodesia (Spencer 1964).
- Cauliflower. .... New Delhi, India (Spencer 1961a); United States (Frick 1957).
- Chinese cabbage. .... Hawaii (Frick 1952a, as *L. hawaiiensis*). Two species of Chinese cabbage are known by specific names. *Brassica chinensis* L., pak-choi. *Brassica pekinensis* (Lour.) Rupr, petsai.
- Chinese winter radish. .... United States (Frick 1957).
- Common mustard cabbage. .... Hawaii (Frick 1953).
- Daikon. .... Hawaii (Frick 1952a, as *L. hawaiiensis*).
- Mustard. .... British Guiana (Spencer 1963). He stated, “I have now seen paratypes of *hawaiiensis* bred from cabbage, nasturtium and “daikon” and have been able to confirm that the genitalia of males from the first two hosts are identical in all respects with the genitalia of males of *brassicae* I have examined from Abyssinia (Spencer, 1961b: fig. 16), West Africa, Rhodesia, Fiji, and Micronesia. I therefore synonymise *hawaiiensis* Frick with *brassicae* (Riley) herewith.”
- Host unknown, caught specimens. .... Teneriff, Cape Verde Islands (Spencer 1959).
- Nasturtium (?watercress, genus *Nasturtium* sp. or garden nasturtium, genus *Tropaeolum* sp.). .... Hawaii (Frick 1952a, as *L. hawaiiensis*); Mauritius, Africa (Spencer 1959). Watercress is listed as *Nasturtium officinale* R. Br. (*Rorippa nasturtium-aquaticum* (L.) Schinz and Thell.).
- Tumbling mustard. .... United States (Frick 1957).
- Turnip. .... United States (Frick 1957).
- White mustard cabbage. .... Hawaii. (Frick 1957).
- Wild radish. .... United States (Frick 1957).

Frick (1952b) stated, “As a result of these studies, *L. brassicae* is considered a valid species. I have reared it from serpentine mines in the leaves of *Tropaeolum* sp. (Nasturtium), *Brassica oleracea* var. *botrytis*, *B. arvensis* (L.), *B. nigra* Koch, *Raphanus sativus* L., *R. sativus* var. *longipinnatus*. Central Europe, Canary Islands, North America.”

Spencer (1959) cited *L. brassicae* as occurring widely in the Palaearctic and Nearctic Regions. Frick (1965) stated the distribution of *brassicae* is widespread throughout the United States and from Manitoba, Canada. Spencer (1961) said that *L. brassicae* is widespread on indigenous plants in Asia.

## FLORIDA REARING RECORDS

*Brassica campestris* L.: Hialeah, 12 Mar. 1963 (C.E.S.).

*Brassica napus* L.: Gainesville, 8 Apr. 1964 (D. H. Habeck).

*Brassica oleracea* var. *botrytis* L.: North Miami, 6 Feb. 1963 (E. B. Lee).

*Brassica oleracea* var. *capitata* L.: North Miami, 11 Feb. 1963 (E. B. Lee).

*Brassica rapa* L.: Hialeah, 17, 19 Mar. 1963 (C.E.S.).

*Cleome* sp.: Hialeah, 13 Mar. 1963 (C.E.S.).

*Lepidium virginicum* L., Field cress; poor-mans pepper; yellow seed; peppergrass.: Miami, 20 Jan. 1963 (C.E.S.); Miami, 22 Feb. 1963 (C.E.S.). A search of the literature indicates that *Lepidium virginicum* is a new host record for *Liriomyza brassicae*.

*Tropaeolum* sp., garden nasturtium: Hialeah, 5 Mar. 1963 (C.E.S.).

REARED PARASITES OF *Liriomyza brassicae*

The following hymenopterous parasites from the family Eulophidae were reared from plant infestations of *Liriomyza brassicae* during 1963. *Chrysocharis* spp., three males; *Diaulinopsis callichroma* Cwfd., a male and a female; and *Pnigalio* sp., two females from cruciferous plant infestations of only one insect, *Liriomyza brassicae*. Parasite determinations were by Dr. B. D. Burks, Entomology Research Division, ARS, USDA.

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