

SEVEN NEW ANGIOSPERMIC HOSTS FOR *OROBANCHE AEGYPTIACA* PERS. (OROBANCHACEAE)

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ABSTRACT

Seven new hosts of *Orobanche aegyptiaca* Pers. were recorded from the district of Malda, West Bengal, namely *Cicer arietinum* (cultivated), *Fumaria indica*, *Argemone mexicana*, *Leucas indica*, *Launaea aspleniifolia*, *Vernonia cinerea* and *Digitaria ciliaris* (all weeds). From the comparison of ten major morphological characters *Launaea aspleniifolia* is appeared as most preferred host followed by *Cicer arietinum*, whereas *Argemone mexicana* is the weakest host.

INTRODUCTION

Orobanche aegyptiaca Pers. (Orobanchaceae) is a common root-parasite in crop-fields in Central and Western Asia. In India it grows throughout the plains (Hooker, 1885). The species is known to be parasitic to various species of BRASSICA, CANNABIS, NICOTIANA and PAPAVER ; (Cooke, 1905 ; Prain, 1903).

During the survey of crop-field weeds in the district of Malda, West Bengal, accidentally some plants were found outside the crop-field growing among entirely a different set of weeds. After this, a few more sites were also discovered and a total of seven new non-conventional hosts were recorded.

To understand the preference of the parasite towards any particular host a comparative survey of its major morphological characters were made.

MATERIALS AND METHODS

After spotting the individulas of *Orobanche aegyptiaca* in the field, hosts along with parasite were dug with 1cft of soil and was

washed slowly with water-jet. Dried and poisoned mounted specimens were deposited at the NBU-Herbarium.

Ten morphological characters were selected to understand the host preference of the parasite, if any, considering that a preferred host will produce a healthier parasite. Depending on the availability 4 to 11 specimens were studied under each host and mean values have been presented. Parasite from a conventional host, *Brassica campestris* was also studied for comparison.

RESULT AND DISCUSSION

Newly collected seven hosts were identified as *Cicer arietinum* L. (Fabaceae), *Fumaria indica* (Hassk.) Pugsley (Fumariaceae), *Argemone mexicana* L. (Papaveraceae), *Leucas indica* (L.) R. Br. ex Vatke (Labiatae), *Launaea aspleniifolia* (Willd.) Hook.f., *Vernonia cinerea* (L.) Less. (Compositae) and *Digitaria ciliaris* (Retz.) Koel. (Poaceae). This is the first record of a Monocotyledonous host for this parasite. Except *A. mexicana*, which may be considered as a relative of the conventional host genus



PLATE I : Seven new hosts for *Orobanchae aegyptiaca* Pers. : (1) *Cicer arietinum* L. ; (2) *Leucas indica* (L.) R. Br. Vatke ; (3) *Fumaria indica* (Hassk.) Pugsley ; (4) *Vernonia cinerea* (L.) Less. ; (5) *Digitaria ciliaris* (Retz.) Koel ; (6) *Argemone mexicana* L. and (7) *Launaea aspleniifolia* (Willd.) Hook.f.

PAPAVER and FUMARIA, all other plants belong to unrelated families and except *C. arietinum* all other plants are weedy and wild. So, now there are five families in the list of hosts for the parasite. (Plate I).

Table I presents the comparison of ten major morphological characters of the parasite expressed with different hosts. The result indicates that *Launaea aspleniifolia* is a preferred species over hosts as it helps to produce healthier parasites with tallest plant,

thickest stem, highest number of flowers, longest spike, largest bract, and largest corolla with widest mouth. *C. arietinum* is also a good host but the largest fruits and seeds were recorded with *D. ciliaris* and *L. indica*, respectively. On the other hand, weakest parasites were produced with *A. mexicana* followed by *V. cinerea*. However, the conventional host *Brassica campestris* is also a good host though it does not show highest value for any of the selected ten characters.

Table I : Comparison of ten major characters of *Orobanche aegyptiaca* developed on parasitizing with different hosts. (L/B = Length/Breadth).

Hosts :	<i>Brassica campestris</i>	<i>Cicer arietinum</i>	<i>Fumaria indica</i>	<i>Argemone mexicana</i>	<i>Leucas indica</i>	<i>Launaea aspleniifolia</i>	<i>Vernonia cinerea</i>	<i>Digitaria ciliaris</i>
Characters								
Height of the plant (cm)	15.1	18.2	15.4	12.45	17.2	22.9	12.2	13.4
Thickness of stem (cm)	0.3	0.5	0.3	0.35	0.4	0.55	0.35	0.35
Number of flowers	15	20	14	11	20	31	20	13
Length of non-flowering part (cm)	9.6	9.3	9.9	8.55	9.6	9.6	8.2	8.8
Length of spike (cm)	5.5	8.9	5.5	3.9	7.6	13.3	4.0	4.6
L/B of bracts (cm)	0.64/0.3	0.9/0.3	0.7/0.3	0.6/0.275	0.6/0.25	0.92/0.3	0.52/0.35	0.78/0.3
Length of corolla (cm)	1.76	1.84	1.7	1.7	1.98	2.06	1.16	1.84
Width of the mouth of corolla (cm)	0.5	0.56	0.4	0.4	0.58	0.64	0.5	0.44
L/B of fruit (cm)	0.6/0.3	0.94/0.52	1.0/0.5	0.6/0.35	0.94/0.6	1.04/0.6	0.6/0.3	1.74/0.44
L/B of seed (mm)	0.352/ 0.259	0.438/ 0.298	0.357/ 0.256	0.348/ 0.251	0.479/ 0.279	0.360/ 0.286	0.349/ 0.248	0.424/ 0.284

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