Survey and Identification of Host Plants of Leaf Miner Insect *Phytomyza Horticola* in Fields of Dhi-Qar Province South of Iraq

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Abstract:

A survey of *Phytomyza horticola* host plants was conducted in fields of Dhi-Qar province from four stations, during the period from January 2019 to January 2021, the infected leave were collected from different plants and the larvae were reared under the conditions of laboratory, the adults were identified according to their taxonomic keys. In current study eleventh families and fourteenth species were recorded as a host plant of *Phytomyza horticola* in Dhi-Qar province.

Keywords: *Phytomyza horticola*, Dhi-Qar, leaf miner, Iraq.

Introduction

The species of Agromyzidae are commonly considered leaf miners due to the feeding habits of their larvae, the larvae eat plants some of them become galls and some are leaf miners. This family is widespread through the world but significantly reduced in the southern hemisphere (Spencer, 1961, 1963). In each of their various feeding habits, agromyzid species undermine the tissue inside different parts of plants. They are classified as leaf miners, cambium miners and even parasites that feed on fruit buds (Braunt et al,. 2008. Spencer, 1973). In some cases, several species produce mines in leaves allowing them to be identified by their distinctive mines (Spencer, 1990). In some cases, agromyzid species are serious pests of cultivated plants. Adults of Phytomyza species are distinguished by the combination of the following morphological characteristics: fronto-orbital seta proclinate, costa extending only on the vein R4+5 and cross vein dm-cu usually absent (Spencer and Steskal, 1986), the medial vein M is usually much weaker than branches of the radial vein R .

For a time, this species was referred to as *Chromatomyia horticola*, a leaf-mining fly from the order Diptera belonging to the family Agromyzidae. However, its original name has been restored since Phytomyza is a synonym of Chromatomyia (Winkler et al., 2009), a pest of high economic importance affecting temperate and tropical vegetable crops (Spencer, 1973).

Phytomyza horticola is recorded in around 268 genera of 36 families, commonly Brassicaceae, Fabaceae and Asteraceae. The polyphagous pest is distributed in various regions of Africa, Asia and Europe.

According to the literature, Phytomyza horticola is found in around 268 genera and 36 families, most commonly in Brassicaceae, Fabaceae, and Asteraceae..

Methods and materials

Sampling of individuals were conducted at different localities of Dhi Qar proince and included the areas of Al-Gharaf, Al-Shatrah, Al-Jazirah and Al-Rifai, for the period from January 2019 to January 2021, the comprehensive field survey was conducted for plant families infected with pea leaf miner insect.

The infected leaf of various host plants which bearing the larvae and pupae of mining agromyzid were carefully cut off and transferred to laboratory in Faculty of Agriculture, Department of Soil, placed in Petri dishes and left at room temperature for 20-30 days until the emergence of adults. Insects were identified according to taxonomic keys of Spencer (1989).

Results and discussion :

14 species of plant belong to 11 family were recorded from different fields of Dhi-Qar province (Table. 1), the families were: Rhamnaceae, Fabaceae, Convolvulaceae, Malvaceae, Lamiaceae, Euphorbiaceae, Asteraceae, Brassicaceae, Cucurbitaceae, Boraginaceae, Orchidaceae .

In the upper portion of the leaf, larvae feed by mining through the palisade tissue of the leaf (Plate, 1).

It is common for mines to be off-white, with trails of brass appearing as broken black strips along their length.

Table (1): Plant families an host plant were identified, as shown in table below:

Plant family	Host plant	locality	Collection date
Asteraceae	*Aster sp.* *Gazania sp.*	Rifaii, Shattra, AL-Shatra, AL-Gharaf, Al-Jazira	April
Boraginaceae	*Borago officinalis*	Rifai, Al-Jazira	December, January
Brassicaceae	*Raphanus sativus*	Rifai, Shatra	Dec. Jan. Fab.
Convolvulaceae	*Convolvulus arensis*	Rifai, Shatra, AL-Gharaf, Al-Jazira	Fab. March
Euphorbiaceae	*Sonchus oleraceae*	Rifai, Shatra, AL-Gharaf, Al-Jazira	Fab. March
Fabaceae	*Meliolus sp* *Vicia faba.*	Rifai, Shatra, AL-Gharaf, Al-Jazira	October
Lamiaceae	*Mentha sp.*	Rifai, Satra	March
Malvaceae	*Alcea rosa* *Malva parviflora*	Rifai, Shatra	Feb.
Orchidaceae	*Arrhenatherum*	Rifai, Shatra, AL-Gharaf, Al-Jazira	Fab. – Mar.
Rhamnaceae	*Ziziphus*	Rifai, Shatra, AL-Gharaf, Al-Jazira	Fab.-May
Cucurbitaceae	*Cucumis sativus*	Rifai, Shatra, AL-Gharaf, Al-Jazira	Fab.- May

Plate 1. Showed leaf mining caused by *Phytomyza Horticola*

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مسح و تشخيص العوائل النباتية لصانعة الأنفاق *Phytomyza horticola* في حقول محافظة ذي قار جنوب العراق

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الملخص:

تم إجراء مسح لنباتات المصابة بحشرة صانعات الأنفاق *Phytomyza horticola* في حقول محافظة ذي قار و أجريت الدراسة للفترة من يناير 2019 إلى يناير 2021 اختيرت أربع محطات للدراسة ، وتم جمع الاوراق النباتية المصابة من نباتات مختلفة وربيت اليرقات تحت ظروف المختبر. شخصت البالغات وفقًا للمفاتيح التصنيف المعتمدة. و كانت نتائج الدراسة الحالية تسجيل 11 عائلة نباتية و 14 نوعا كنبات مضيف لصانعة الأنفاق *Phytomyza horticola* في محافظة ذي قار جنوب العراق .

الكلمات المفتاحية: *Phytomyza horticola* ، ذي قار، صانعات الأنفاق، العراق.