

HOST PLANTS OF *Frankliniella occidentalis* (*Pergande*) IN BULGARIA

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INTRODUCTION

Frankliniella occidentalis Pergande, also known in some parts of Europe and in the USA as the Western flower thrips (WFT), is very widespread in a number of geographical regions all over the world (6). As well as the tobacco thrips (*Thrips tabaci* Lind) it is a very vital polyphage causing the economically most important tobacco disease (TSWV) and significant damages on pepper, cucumbers, tomato, carnation, roses, chrysanthemum etc.

Some Bulgarian authors report literature references that WFT is a polyphage attacking more than 200 plants species including tobacco (1, 8, 9, 15). The list of host plants found abroad is very wide. Brayn et al. (2) have found it on 139 species belonging to 45 families and Yidin et al. (17) have identified it outdoors on other 37 plant species. Adding the observations from the last several years, we may say that *Fr. occidentalis* Pergande attacks 244 species belonging to 50 families (3, 4, 7, 11).

Data on the hosts and the transmission of TSWV by *Fr. occidentalis* Pergande have also been published by Paliwal (10), Schliephake (13), Woo (16), Pelikan (12), etc.

So far no special studies on the host plants of WFT have been carried out in Bulgaria, so the complete list of its hosts is not available.

The aim of the present study was to dress the possibly most complete list of plants in Bulgaria on which the WFT feeds and develops.

The observations were carried out on a total of 236 plant species in all the tobacco growing regions of the country during the period 1993 - 2000. Only the following groups of food plants

were assigned to the category of WFT hosts: 1) plants on which all the stages of the insect develop; 2) plants, on which the Western flower thrips feeds, but does not develop a complete generation and 3) plants, on which the thrips feeds, but does not develop. The plant material investigated was collected periodically during the whole year from different regions of the country (including greenhouses). The material was gathered by random collection of 10 - 15 plants of each species (of 50 - 100 leaves or flowers, then it was not possible to collect whole plants). The number of samples was 5 to 10, depending on the stage of development of the different plants during the growing period. The isolated thrips were transferred on tobacco plants of the following varieties: Krumovgrad 988, Harmanly 163, Nevrokop 1146, Virginia 0454, Virginia 0514 and Burley 21. Thrips were also transferred back from tobacco to the plant species on which *Thysanoptera* specimen were found, i.e. provoking inoculations were carried out on isolated plants in order to identify the hosts on which the WFT bears offspring. The samples for binocular examination were kept in cotton cloth bags (14) or Millers sieve (5).

The species of *Thysanoptera* were determined by conservation of the material in 96% alcohol followed by preparation of samples for microscopic examination.

The eight-year studies of the plants on which *Frankliniella occidentalis* Pergande feeds and develops give us ground to present the first Bulgarian list of hosts:

**Hosts of the Western flower thrips
(*Franklinella occidentalis* Pergande) in Bulgaria**

Fam. Amaranthaceae

- * *Amaranthus albus* L.
- * *Amaranthus caudatus* L.

Fam. Amaryllidaceae

- * *Narcissus pseudonarcissus* L.

Fam. Asteraceae

- Achillea clypeolata* Sm.
- * *Arctium lappa* L.
- * *Calendula officinalis* L.
- * *Carduus acanthoides* L.
- Chrysanthemum frutescens* L.
- Dahlia coccinea* Car.
- * *Dahlia variabilis* (Willd.) Dest.
- * *Galinsoga parviflora* Cav.
- * *Galinsoga quadriradiata* Ruiz et Pavon
- * *Gerbera jamesonii*
- * *Helianthus annuus* L.
- * *Taraxacum officinale* Web.
- Lactuca sativa* L.
- * *Zinnia elegans* L.
- * *Matricaria chamomilla* L.
- Senecio cineraria* D.C.
- Sonchus oleraceus* L.

Fam. Begoniaceae

- Begonia semperflorans* L.

Fam. Brassicaceae

- * *Brassica oleracea* L.
- * *Capsella bursa pastoris* (L.) Med.
- * *Cheiranthus cheiri* L.

Fam. Caryophyllaceae

- Dianthus giganteus* D/Urv.
- * *Saponaria officinalis* L.

Fam. Convolvulaceae

- * *Convolvulus arvensis* L.

Fam. Cucurbitaceae

- Cucumis sativus* L.
- * *Cucumis melo* L.

Fam. Iridaceae

- Gladiolus gladiola* L.

Fam. Fabaceae

- * *Arachis hypogaea* L.

* *Cicer arietinum* L.

* *Lupinus albus* L.

* *Medicago sativa* L.

* *Melilotus officinalis* (L.) Pall.

* *Phaseolus vulgaris* L.

* *Pisum sativum* L.

* *Trifolium campestre* Schreb. in Sturm.

Fam. Geraniaceae

* *Erodium cicutarium* L.

* *Pelargonium* sp.

Fam. Gesneriaceae

* *Saintpaulia* sp.

Fam. Hypericaceae

* *Hypericum perforatum* L.

Fam. Lamiaceae

* *Mentha arvensis* L.

Fam. Malvaceae

Alcea rosea L.
Malva neglecta Wallr.
Malva parviflora L.

Fam. Orchidaceae

Cymbidium rievaulx Hamsey

Fam. Polygonaceae

Fagopyrum esculentum Meth.

Fam. Portulacaceae

* *Portulaca oleracea* L.

Fam. Primulaceae

Primula officinalis Jacq.

Fam. Rosaceae

Rosa damascena Mill.

Fam. Solanaceae

Capsicum annuum L.
Datura stramonium L.
Lycopersicon esculentum Mill.
Nicandra physaloides (L.) Geartn.
Nicotiana tabacum L.
Petunia hybrida hort.
Solanum melongena L.
Solanum tuberosum L.

Fam. Tropaeolaceae

Tropaeolum majus L.

Fam. Urticaceae

*Urtica dioica L.

Fam. Verbenaceae

Verbena officinalis L.

Verbena encelioides L.

Fam. Zygophyllaceae

Tribulus terrestris L.

*Found for the first time in Bulgaria

CONCLUSIONS

Out of the 64 plants of 25 families identified as hosts of the EWestern flower thrips in Bulgaria, the largest number of hosts are found

among the Asteraceae and Solanaceae families. 37 of them are reported for the first time in entomological literature.

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**РАСТЕНИЈА-ДОМАЌИНИ НА *Franklinella occidentalis* (Pergande)
ВО БУГАРИЈА**

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РЕЗИМЕ

Целта на пручувањата изведени во периодот 1993 - 2000 г. во сите тутуно-производни региони во Бугарија беше да се идентификува што е можно поголем број растенија на кои се храни и развива трипсот *Franklinella occidentalis* (Pergande) и да направиме што е можно покомплетна листа на домаќини во условите на Бугарија.

Посматрањата се вршени на вкупно 236 растителни вида од различни фамилии. Испитуваниот растителен материјал беше собиран периодично, во текот на целата година (вклучувајќи ги тука и стакларниците).

Видовите од Thysanoptera беа одредени со конзервирање на материјалот во 96% алкохол, по што следуваше подготовка на пробите за микроскопски испитувања.

Утврдено е дека *Franklinella occidentalis* се храни и развива на вкупно 64 растенија-домаќини кои им припаѓаат на 25 фамилии, од кои 37 се регистрирани за прв пат како домаќини во Бугарија. Од вкупниот број проучувани и идентификувани растенија, најголем број домаќини се најдени меѓу фамилиите *Asteraceae* и *Solanaceae*.

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