

Effects of Some Repellent Plants on Greenhouse Whitefly (*Trialeurodes vaporariorum* (Westwood, 1856) Hemiptera: Aleyrodidae) in Greenhouse Tomato Production



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3rd INTERNATIONAL SYMPOSIUM ON
ORGANIC GREENHOUSE HORTICULTURE
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INTRODUCTION

- » Repellent and/or companion plants are known with their ability to repel and/or attract insects, nematodes and/or other pests due to the plant compounds including repellents, feeding deterrents, toxins, and growth regulators preventing attack from phytophagous insects.
- » Most can be grouped in to five major chemical categories:
 - (1) nitrogen compounds (primarily alkaloids),
 - (2) terpenoids,
 - (3) phenolics,
 - (4) proteinase inhibitors, and
 - (5) growth regulators (Maia and Moore, 2011).

keep flies away with repellent plants !!!

AIM

To determine the effects of some repellent plants on whitefly *Trialeurodes vaporariorum* (Westwood, 1856) population in greenhouse tomato production.



BioGreenhouse



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MATERIAL AND METHODS

Repellent plants:

- Basil** (*Octimum basilicum* L.)
- Mint** (*Mentha avensis* L.)
- Dill** (*Anethum graveolens* L.)
- Garlic** (*Allium sativum* L.)
- Onion** (*Allium cepa* L.)
- Parsley** (*Petroselinum crispum* Mill.)
- Cilantro** (*Coriandrum sativum* L.)



20 repellent and 3 tomato plants



Experimental design : Randomized parcels

Seed/sty sowing dates: 4 September 2014

Planting date of tomato: 30 September 2014

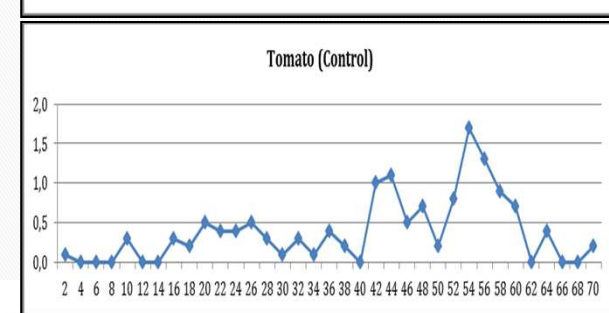
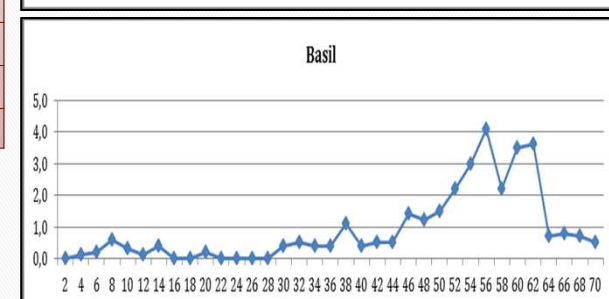
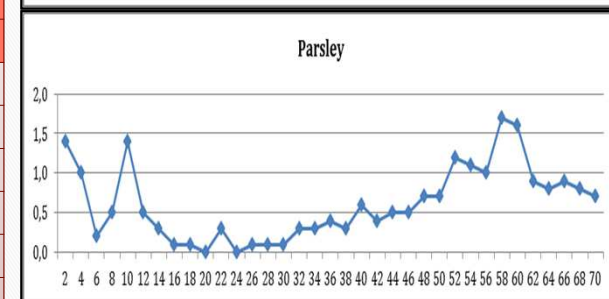
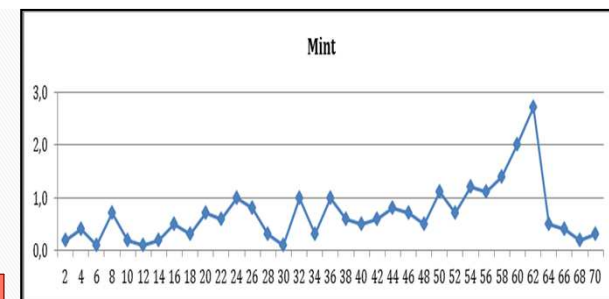
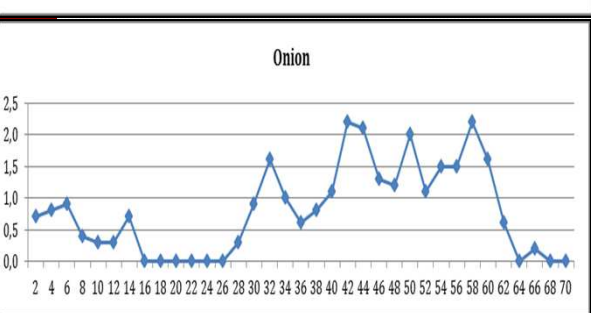
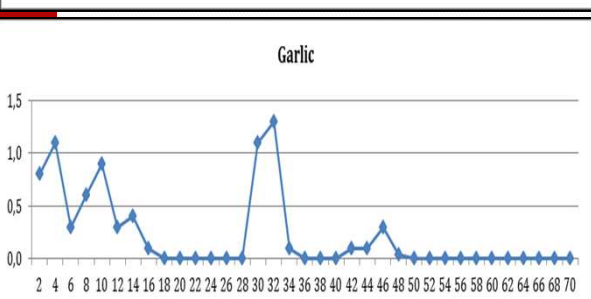
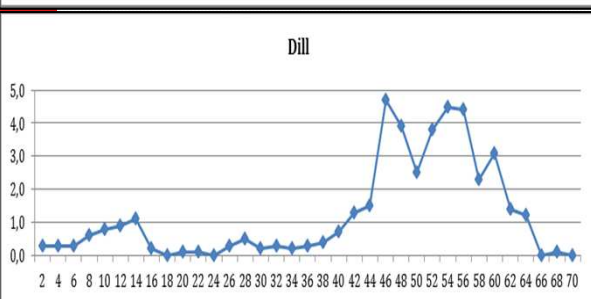
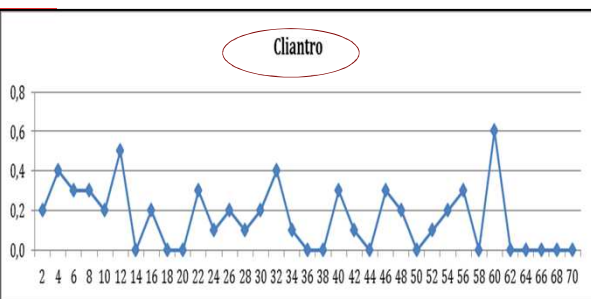
After the planting of tomatoes, 500 *Trialeurodes vaporariorum* adult and pupae were released. Whiteflies were counted on the 10 different leaves for each treatment that were randomly selected from the upperside, mediumside and lowerside twice a week between 17.04.2014 - 4.01.2015.



Substrate: Mixture of soil, peat and perlite (1:1:1, v:v)

RESULTS

Effects of repellent plants on whitefly individuals



Plants	Counting Days							
	2 nd	10 th	20 th	30 th	40 th	50 th	60 th	70 th
Cilantro	0.2	0.2	0.0	0.2	0.3	0.0 c	0.6	0.0
Dill	0.3	0.8	0.2	0.2	0.7	2.5 a	3.1	0.0
Garlic	0.8	0.9	0.0	1.1	0.0	0.0 c	0.0	0.0
Onion	0.7	0.3	0.0	0.9	1.1	2.0 ab	1.6	0.0
Mint	0.2	0.2	0.7	0.1	0.5	1.1 abc	2.0	0.3
Parsley	1.4	1.1	0.0	0.1	0.6	0.7 abc	1.6	0.7
Basil	0.0	0.3	0.2	0.4	0.4	1.5 abc	3.5	0.5
Tomato	0.1	0.3	0.5	0.1	0.0	0.2 bc	0.7	0.2
P	0.159	0.531	0.116	0.163	0.345	0.026	0.313	0.172

The **average** individual amount of *T. vaporariorum* on each leaf of tomato plants

Onion: 0.8

Garlic: 0.22

Dill: 1.21

Cilantro: 0.16

Mint: 0.68

Basil: 0.90

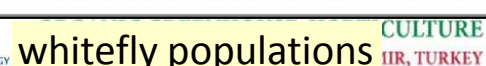
Parsley: 0.61

Control: 0.39



whitefly populations

whitefly populations



CONCLUSION

- ✓ It was concluded that **cilantro (*Coriandrum sativum*)** due to the whitefly population intensity on each leaf (0.16) was found promising among the tested repellent plants and could be used in commercial production.
- ✓ Also the volatile oils made the fruits of *C. sativum* plants could be used for **pest control in organic agriculture**.



Coriandrum sativum

