

FAUNA OF HOVERFLIES (DIPTERA: SYRPHIDAE) IN TOBACCO BIOCENOSIS

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ABSTRACT

Larvae of the aphidophagous species of hoverflies are of major importance in regulation of the number of aphids.

The main goal of the investigations was to perform faunistic analysis of the family Syrphidae.

The analyses were carried out in the tobacco biocenosis in the Prilep area. We undertook the following methods: examination of 20 tobacco stalks, the examination of 100 tobacco leaves, the yellow water vessels method, the insect-catcher method and faunistic analyses with parameters: active dominance, active abundance, consistency or frequency.

The quantitative analyses is based on final evaluation of the total number of collected individuals: 2900 of *Sphaerophoria scripta* L., 2147 of *Sphaerophoria rueppelli* Wied., 1833 of *Scaeva pyrastri* L., 647 of *Episyrphus balteatus* De Geer, 146 of *Eupeodes corollae* Fab., 2 of *Syrphus ribesii* L., 184 of *Paragus quadrifasciatus* Meig., 5 of *Paragus bicolor* Fab., 19 of *Paragus tibialis* Fallén, 101 of *Melanostoma mellinum* L., 21 of *Eristalis tenax* L., 7 of *Eristalis arbustorum* L. and 15 of *Syritta pipiens* L.

S. scripta, *S. rueppelli*, *S. pyrastri* and *E. balteatus* are dominant species. *E. corollae*, *P. quadrifasciatus* and *M. mellinum* are sub-dominant species. Others species have very low dominance and they are sub-recedent species.

S. scripta is the most numerous species in each year of study and by all study methods. *S. scripta* is euconstant species in 2004 and 2005 and it is constant in 2003. *S. rueppelli* is constant species during all years. *S. pyrastri*, *E. balteatus* and *E. corollae* are confirmed with less constancy. Other species are accidentally present in tobacco entomocenosis in Prilep. The increase of larval abundance of aphidophagous hoverflies approximates the period of mass reproduction of aphids in tobacco.

S. scripta, *S. rueppelli*, *S. pyrastri* and *E. balteatus* can be used for biological struggle within the integral protection of tobacco against aphids.

Key Words: tobacco, aphids, Syrphidae, faunistic analyses, aphidophagous hoverflies

OBJECTIVES

Aphidophagous hoverflies are one of the most important factors decreasing the number of aphid *Myzus persicae* Sulz. – a main pest of tobacco.

The main goal of the investigations was to perform faunistic analysis of the family Syrphidae in tobacco biocenosis.

MATERIALS AND METHODS

Investigations were carried on tobacco plants in the area of Prilep. We applied the following methods for hunting hoverflies: the examination of 20 randomly selected tobacco stalks infested with aphids, the examination of 100 randomly selected tobacco leaves infested with aphids, the yellow water vessels method and the insect-catcher method.

Monitoring and collecting of material was performed during the entire tobacco vegetation, from tobacco seedlings, until the end of September, in a period of 10 days.

These four methods of analysis are simple and safe to perform; there is an advantage when the data is collected by one person only. With these methods we can successfully monitor the number and types of composition of the leaf aphids, the qualitative and quantitative representation of hoverflies, and their relationship in tobacco biocenosis.

We conducted the faunistic analyses of Syrphidae family with parameters: active dominance, active abundance, consistency or frequency.

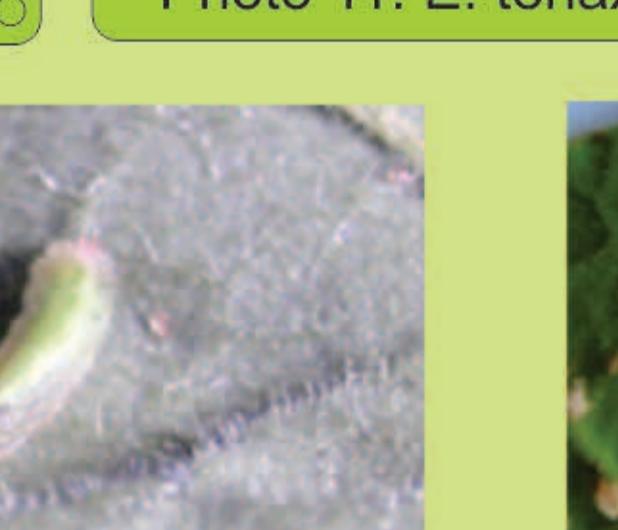
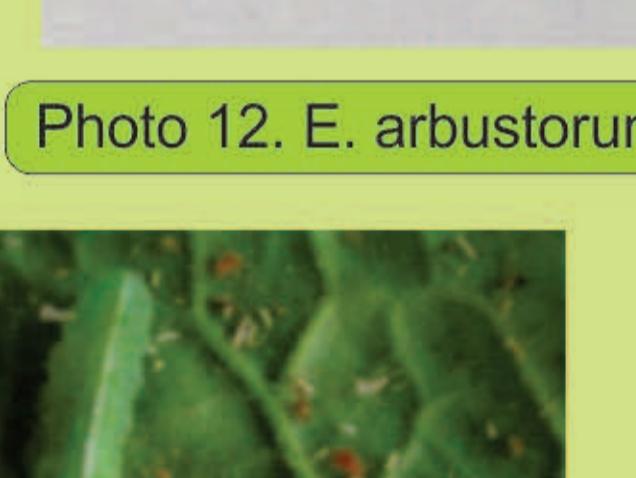
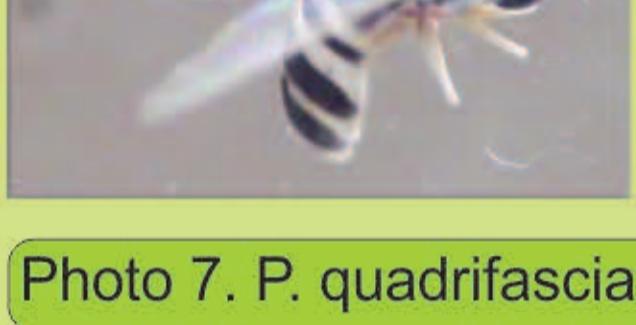
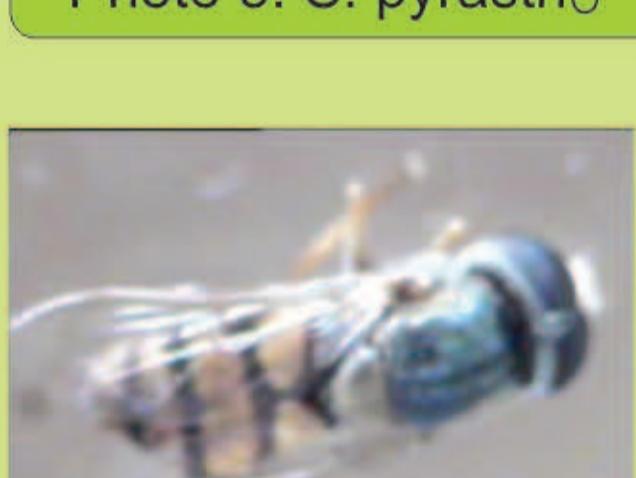
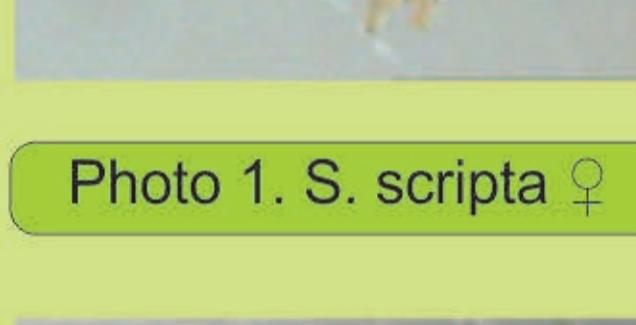
CONCLUSIONS

According the faunal analyses *S. scripta*, *S. rueppelli* and *S. pyrastri* make the main core of the hoverflies in tobacco biocenosis, followed by *E. balteatus*. They can be used for biological struggle within the integral protection of tobacco against aphids. Their bio-regulatory function in tobacco-biocenosis should be taken into consideration.

RESULTS AND DISCUSSION

Table 2. Faunistic analyses of Syrphidae

Species	Year	Active dominance		Consistency or frequency
		%	%	
<i>S. scripta</i>	2003	46,81	16,66	69,64
	2004	28,85	17,41	76,79
	2005	37,38	17,71	75,00
<i>S. rueppelli</i>	2003	29,95	10,66	55,36
	2004	32,87	19,84	66,07
	2005	16,54	7,84	50,00
<i>S. pyrastri</i>	2003	7,53	2,68	28,57
	2004	25,65	15,48	44,64
	2005	30,75	14,57	32,14
<i>E. balteatus</i>	2003	6,12	2,18	23,21
	2004	8,82	5,32	32,14
	2005	8,55	4,05	28,57
<i>E. corollae</i>	2003	2,01	0,71	14,29
	2004	1,30	0,79	25,00
	2005	2,34	1,11	19,64
<i>S. ribesii</i>	2003	-	-	-
	2004	0,03	0,02	1,79
	2005	0,04	0,02	1,79
<i>P. quadrifasciatus</i>	2003	4,11	1,46	16,07
	2004	0,71	0,43	12,50
	2005	2,94	1,39	16,07
<i>P. testaceus</i>	2003	0,10	0,04	3,57
	2004	0,09	0,05	3,57
	2005	-	-	-
<i>P. tibialis</i>	2003	0,25	0,09	5,36
	2004	0,18	0,11	8,93
	2005	0,30	0,14	8,93
<i>M. mellinum</i>	2003	2,41	0,86	17,86
	2004	1,04	0,63	17,86
	2005	0,68	0,32	7,14
<i>E. tenax</i>	2003	0,35	0,13	8,93
	2004	0,21	0,13	8,93
	2005	0,26	0,13	8,93
<i>E. arbustorum</i>	2003	0,15	0,05	3,57
	2004	0,06	0,04	3,57
	2005	0,08	0,04	3,57
<i>S. pipiens</i>	2003	0,20	0,07	5,36
	2004	0,21	0,13	8,93
	2005	0,15	0,07	7,14



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