

THRIPS (*THYSANOPTERA*, *INSECTA*) COLLECTED ON
THYMUS VULGARIS AND *MELISSA OFFICINALIS* IN FAJSŁAWICE
(THE LUBLIN REGION)

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Abstract. *Thysanoptera* occur in large numbers on many cultivated plants. Studies of *Thysanoptera* were conducted during the period May-July 2000 in the agricultural area of the village of Fajslawice in the Lublin Region. The insects were collected from *Melissa officinalis* and *Thymus vulgaris* with the use of Moericke's white and blue traps. A total number of 28 *Thysanoptera* species were collected, which constitutes 13% of the fauna of these insects in Poland; 24 *Thysanoptera* species were collected on thyme, and 22 on melissa. The numbers of *Thysanoptera* on melissa crop were twice as big in blue than in white traps. On thyme crop, the differences in numbers of insects in traps of both colours were very small.

Key words: thrips, *Thysanoptera*, thymus, melissa, the Lublin Region

INTRODUCTION

Due to the contents of various organic and inorganic compounds, such as saccharides, phospholipides, sterols or vitamins, medicinal plants are willingly 'visited' by insects. *Thysanoptera* also often feed and develop on widely growing and cultivated plants. Sucking sap, they cause considerable mechanical damage, bring viral diseases and facilitate the penetration of pathogens into the plants. Damaged plants are of smaller value than those which are healthy.

RESEARCH AREA AND METHODS

Studies on the occurrence and numbers of *Thysanoptera* on *Thymus vulgaris* and *Melissa officinalis* L. crops were carried out during the period May-July 2000 in Fajstławice (Province of Krasnystaw, Lublin Region), where farmers specialize mainly in the cultivation of herbs. This village is located in an agricultural area in the central part of the Lublin Uplands, with limestone soils and brown soils on loess [5].

In plant crops examined, Moericke's traps were placed, three on each crop in blue and white colours filled with ethylene glycol solution. Slides were prepared from individual insects collected and fixed in ethylene glycol by submerging them in Berlese's fluid. *Thysanoptera* species were determined based on the reports by Mound [6], Schliephake and Klimt [7]. The determinations of selected species were checked and confirmed by Dr Halina Kucharczyk of the Department of Zoology at the Maria Curie Skłodowska University, to whom I express my thanks for assistance provided.

RESULTS AND DISCUSSION

A total number of 14,453 *Thysanoptera* insects were collected which belonged to 25 species. On thyme 23 species were found, while on melissa – 19 (Tables 1 and 2). The number of species together with previously observed: *Haplothrips aculeatus*, *Oxythrips ajugae* and *Neohydatothrips abnormis* [1] was 28, which constitutes 13% of *Thysanoptera* fauna in Poland.

The largest numbers of *Thysanoptera* were collected on melissa – 8,037 individual insects (56% of the whole material) – Table 1, followed by large numbers of floricolous polyphagous species: *Thrips physapus*, *Frankliniella intonsa* and herbicolous *Thrips trehernei* which were caught in both white and blue traps, and also floricolous *Thrips atratus*, *Th. fuscipennis* and herbicolous *Thrips tabaci*. The remaining species occurred in even smaller numbers. It was observed that the number of individual insects caught in blue traps was twice as high as in white traps, whereas the number of *Thysanoptera* species in both types of traps was nearly the same – 16 in white and 17 in blue traps. The peak in numbers of insects was noted in May, the highest percentage being of *Thrips physapus* and *Frankliniella intonsa*, while a decrease was observed in June and an increase in numbers noted again in July – with a considerable percentage of *Thrips atratus*, *Th. fuscipennis* and *Frankliniella intonsa*.

Table 1. Trophic groups and occurrence of the thrips (*Thysanoptera, Insecta*) collected on *Melissa officinalis* into white (b) and blue (n) Moericke's traps

| No. | List of thrips species | Date of collection | | | | | | Σ | | |
|------------------------|---|--------------------|------|----------|-----|---------|-----|------|------|------|
| | | 31.05.00 | | 16.06.00 | | 7.07.00 | | | | |
| | Trophic group | b | n | b | n | b | n | b+n | | |
| Aeolothripidae | | | | | | | | | | |
| 1. | <i>Aeolothrips intermedius</i> Bagnall | 1 | 2 | 2 | 1 | 3 | 10 | 6 | 13 | 19 |
| Thripidae | | | | | | | | | | |
| 2. | <i>Anaphothrips obscurus</i> (Müller) | | 1 | | | | | | 1 | 1 |
| 3. | <i>Aptinothrips rufus</i> Haliday | | | 1 | | | | 1 | | 1 |
| 4. | <i>Frankliniella intonsa</i> (Trybom) | 586 | 1034 | 158 | 63 | 50 | 141 | 794 | 1238 | 2032 |
| 5. | <i>Frankliniella tenuicornis</i> (Uzel) | 3 | 10 | | | 3 | | 3 | 10 | 13 |
| 6. | <i>Kakothrips robustus</i> (Uzel) | 1 | 1 | | | 1 | | 1 | 1 | 2 |
| 7. | <i>Limothrips denticornis</i> Haliday | | | 1 | | 1 | | 1 | 1 | 2 |
| 8. | <i>Stenothrips graminum</i> Uzel | | | | | | 1 | | 1 | 1 |
| 9. | <i>Thrips albopilosus</i> Uzel | 2 | | | 1 | | 2 | 2 | 3 | 5 |
| 10. | <i>Thrips angusticeps</i> Uzel | 1 | 21 | 2 | | | | 3 | 21 | 24 |
| 11. | <i>Thrips atratus</i> Haliday | 27 | 167 | 33 | 99 | 130 | 195 | 190 | 461 | 651 |
| 12. | <i>Thrips flavus</i> Schrank | | 4 | | | | | | 4 | 4 |
| 13. | <i>Thrips fuscipennis</i> Haliday | 125 | 104 | 26 | 22 | 50 | 128 | 201 | 254 | 455 |
| 14. | <i>Thrips major</i> Uzel | 2 | | 4 | 3 | 10 | | 16 | 5 | 21 |
| 15. | <i>Thrips nigropilosus</i> Uzel | 2 | 26 | 8 | 9 | | 11 | 10 | 46 | 56 |
| 16. | <i>Thrips physapus</i> Linnaeus | 1098 | 1486 | 16 | 16 | | 17 | 1114 | 1519 | 2633 |
| 17. | <i>Thrips tabaci</i> Lindeman | 85 | 224 | 28 | 6 | 70 | 47 | 183 | 277 | 460 |
| 18. | <i>Thrips trehernei</i> Priesner | 134 | 1455 | 26 | 38 | | 3 | 160 | 1496 | 1656 |
| Phlaeothripidae | | | | | | | | | | |
| 19. | <i>Haplothrips setiger</i> Priesner | | | | | 1 | | | 1 | 1 |
| | Σ | 2067 | 4505 | 305 | 258 | 314 | 558 | 2686 | 5351 | 8037 |

The largest groups were *Thysanoptera* feeding on flowers of herbaceous plants (floricolous) – 9 species; followed by the species feeding on inflorescences, leaves of grasses and sedges (graminicolous) – 5 species; feeding and developing on herbaceous plants but showing no preference for any particular part of plants (herbicolous) – 4 species; and 1 predatory species (zoophagous) [8].

6,416 insects of 23 species were collected on thyme (44% of the whole material) – Table 2. The numbers of *Thysanoptera* in white and blue traps was similar. Their maximum occurrence was observed in May and July. *Frankliniella intonsa* had a dominant effect on the high level of their numbers in May and July. This species was also dominant in June. In July, the numbers of *Thrips atratus* and *Th. tabaci* were also large in the traps. In thyme crop, the largest groups were: floricolous – 10, graminicolous – 6 and herbicolous – 4 species. In addition, the presence of 1 foliicolous species was noted, connected with the leaves of herbaceous plants, trees and bushes – *Thrips minutissimus*, zoophagous *Aeolothrips intermedius* and corticolous mycophages occurring under the bark of trees and in forest litter – *Hoplothrips corticis*, which is species rarely noted in Poland [9].

The method of collecting insects with the use of Moericke's traps is effective, which was confirmed by the large number of *Thysanoptera* caught. Moericke's traps are one of the commonly applied methods for collecting insects, based on the selectivity of these insects with respect to colour. This method is known from studies conducted on cultivated fields [10, 11]. The aim of the present study was to indicate the sensitivity of insects to colours, which would enable us to collect and control numerous pest species. The following orders of insects were subject to analysis: *Coleoptera*, *Lepidoptera*, *Heteroptera*, *Planipennia*, *Hymenoptera* and *Diptera* [10, 11]. Traps in 25 colours were used in the experiment. *Diptera* and *Hymenoptera* proved to be the most sensitive to colours. They most often chose white. Among *Coleoptera* and *Lepidoptera* orders, lepidopterans were more sensitive to colours and 100% of their species 'visited' colourful traps, while among coleopterans only 33%. In insects of *Heteroptera* and *Planipennia* orders no reaction to colours was observed.

Among the species of *Thysanoptera* order no clear differences were noted in their preferences with respect to colours. However, the numbers of these insects in melissa crops – in blue traps was twice as small as in white traps. In thyme crops, the differences in numbers were very small – a slightly larger number of individual insects was found in white trap. Therefore, it is difficult to unequivocally determine which colour of trap is more attractive.

The results of other studies [3, 4] indicate that apart from colour, the scent of attracting substances and the size of traps affect the numbers of insects collected.

In addition, nutritive compounds present in plants decide the taste attractiveness of plants for insects [2].

CONCLUSIONS

Among the species of *Thysanoptera* order no clear differences were noted in their preferences with respect to colours. However, the numbers of these insects in melissa crops – in blue traps was twice as small as in white traps. In thyme crops, the differences in numbers were very small – a slightly larger number of individual insects was found in white trap. Therefore, it is difficult to unequivocally determine which colour of trap is more attractive.

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WCIORNASTKI (*THYSANOPTERA*, *INSECTA*) ZEBRANE NA TYMIANKU
POSPOLITYM I MELISIE LEKARSKIEJ W FAJSŁAWICACH
(WOJ. LUBELSKIE)

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Streszczenie. Wciornastki bardzo licznie występują na wielu roślinach uprawnych. Badania nad wciornastkami prowadzono od maja do lipca 2000 roku w obszarze rolniczym wsi Fajslawice (woj. lubelskie). Owady łowiono z melisy lekarskiej i tymianku pospolitego przy użyciu białych i niebieskich pułapek Moericke'go. Ogółem zebrano 28 gatunków wciornastków, co stanowi 13% fauny *Thysanoptera* Polski. Na tymianku stwierdzono występowanie 24 gatunków wciornastków, na melisie 22. Liczebność wciornastków w uprawie melisy była o połowę większa w pułapkach niebieskich niż białych. W uprawie tymianku różnice liczebności w obu barwach pułapek były bardzo małe.

Słowa kluczowe: wciornastki, tymianek, melisa, woj. lubelskie

