PEAR ESTER-BASED FEMALE-TARGETED LURES - RESPONSES OF NON-COOLING MOTH LEPIDOPTERA

Töth, M.1 Landolt, P.2 Holb, I.1 Szarkán, I.1 Szöllőth, I.1 Vitányi, I.1 Pénzes, B.4 Hári, K.4 Kocor, S.1

1 Plant Protection Institute, HAS Budapest, P.O. 102, H-1525, Hungary, b373@ftf.ttk.ki.
2 Utah State University, CA. Agric. Sci. Engin., Logan, ID 84308, USA
3 Debrecen University, Cs. Agric. Sci. Engin., Debrecen, Bûcsúteményi ut. 138, H-4032, Hungary
4 Corvinus University of Budapest, Horticultural Faculty, Budapest, Mienek út 44, B-1138, Hungary

Introduction
Pear ester (ethyl-2,4-didecanolate) was recently described as a powerful attractant for female cooling moths in North America [1]. However, when we enthusiastically field tested pear ester-based traps in Hungary, we could never demonstrate significant field activity for this compound. Similar experience was reported also from Bulgaria [2], and by personal communication from several other colleagues as well. Following the breakthrough discovery of Landolt et al. [3], who first showed that catches to pear ester dramatically increased in the presence of acetic acid at non-European sites [1], in our tests in Hungary we also confirmed this finding on a European cooling moth population (Fig 1). Traps baited with a combination of pear ester + acetic acid were capable of catching females and yielded a flight pattern similar to that obtained by pheromone traps for males (Fig 2). Here, we present our results with pear ester-based lures on species other than cooling moth.

Materials and Methods
Field trapping tests were conducted in several orchards in Hungary, by internationally accepted and well established methods [4]. Capture data were analyzed by ANOVA, and treatment means were separated by Gunns-Howell test. Significant difference from zero catches was established by Bonferroni-Dunn test. In the figures means with same letter within one diagram were not significantly different from each other at P > 0.05.

Results and Discussion
Catches of Hedya himalyana (Tortricidae) were also highest when both pear ester and acetic acid were present (Fig 3). Pear ester, which has previously been described in Italy as an attractant for H. himalyana [5], showed a much lower activity in our tests (Fig 1). The pear ester-based lure was suitable to establish a flight occurrence pattern for females, and caught ca. 30-50% of total number caught in pheromone-based traps (which latter caught only males) (Fig 4).

Catches of S. myopaeformis (Tortricidae) showed similar trends. Highest numbers recorded when both acetic acid and pear ester were present. (Fig 7). Both sexes were captured, and flight patterns were established by pear ester-based lures (Fig 8). In this case, comparison with pheromone traps was not possible since no pheromone is available.

Acknowledgements: The present research was partially supported from grants OTKA K 76059 and K 81095.

REFERENCES

Fig 1

Fig 2

Fig 3

Fig 4

Fig 5

Fig 6

Fig 7

Fig 8

The uniform trend observed in all species studied that the addition of acetic acid to compound thought to be connected with microbial fermentation indicating a feeding site for several Lepidoptera increased the attractor of pear ester strongly suggests that pear ester is also a stimulus of food source localization.

To our knowledge this is the first report on the activity of pear ester-based lures on non-tortricid Lepidoptera, and suggests that the compound may be exploited as a host location stimulus by a wider array of insects that thought before.