

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

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Introduction

Pear ester (ethyl-2,4-decadienoate) was recently described as a powerful attractant for female codling moths in North America [1]. However, when we enthusiastically field tested pear ester-baited traps in Hungary, we could never demonstrate significant field activity for this compound. Similar experience was reported also

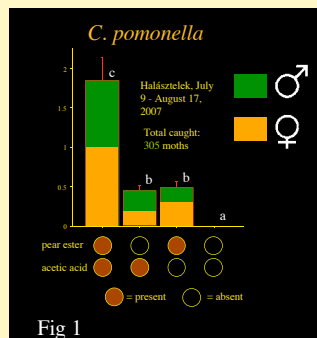


Fig 1

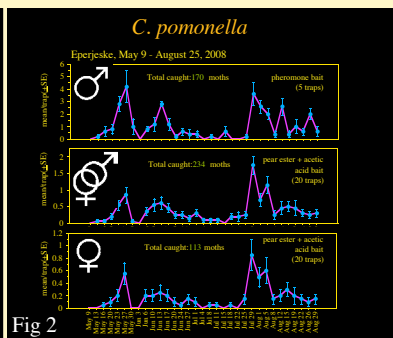


Fig 2

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 [3], in our tests in Hungary we also confirmed this finding on a European codling 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 codling 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 analysed by ANOVA, and treatment means were separated by Games-Howell test. Significant

difference from zero catch 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 nubiferana* (Tortricidae) were also highest when both pear ester and acetic acid was present (Fig 3). Pear ester, which has previously been described in Italy as an attractant for *H. nubiferana* [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 numbers caught in pheromone-baited traps (which latter caught only males) (Fig 4).

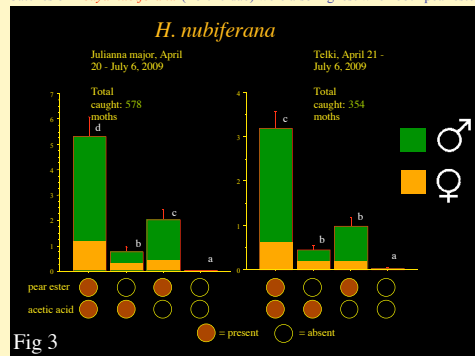


Fig 3

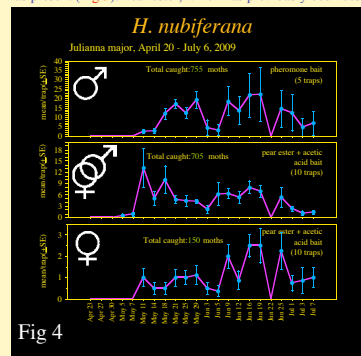


Fig 4



H. nubiferana

It was more surprising that significant catches of the apple clearwing *Synanthedon myopaeformis* (Sesiidae) were also recorded, again, with highest catches in the binary blend (Fig 5). This sesiid counts among the important pests of apple in Europe. Pear ester + acetic acid lures were active no matter whether the two compounds were dispensed from separate dispensers or from a single dispenser, and the majority of the clearwings caught were females. As compared to pheromone traps, pear ester-based lures caught ca 20-25% of total catches, of which ca. the half were females (Fig 6).



S. myopaeformis

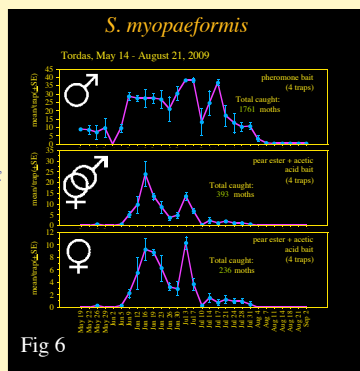


Fig 6

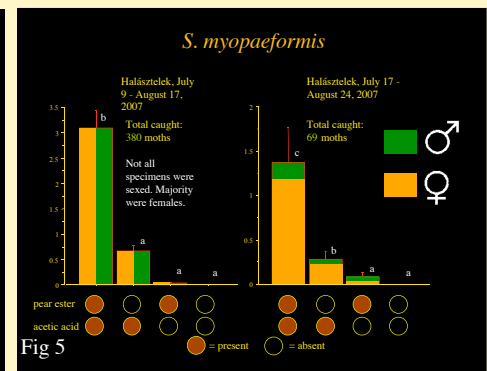


Fig 5

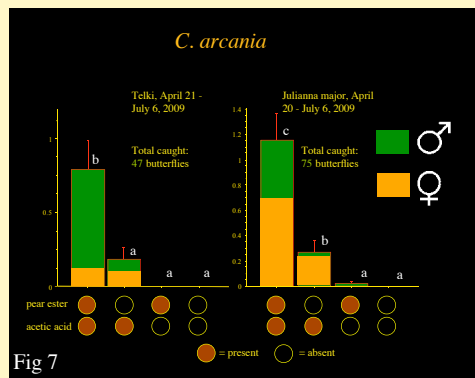


Fig 7



Fig 8

Last, but not least, catches of a day-flying butterfly, *Coenonympha arcania* (Satyridae) showed similar trends, highest numbers recorded when both acetic acid and pear ester are 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.



C. arcania
(the small moths are *H. nubiferana*)

The uniform trend observed in all species studied that the addition of acetic acid (a compound thought to be connected with microbial fermentation indicating a feeding site for several Lepidoptera) increased the attraction 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.

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