

## Semi-synthetic preparation of sex pheromones from plants – new method of IPM?

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Sex pheromones of moths, fatty acid (FA) derived compounds, are produced by females to attract males. The pheromone biosyntheses involve desaturation by specific desaturases, chain shortening and/or elongation, and functional groups formation. Here we describe the first construction of a genetically modified plant (GMP) with the ability to produce moth sex pheromone precursors.

Plasmid pBI-DESTn bearing Pdest-Tn  $\Delta^{11}Z$  encoding cabbage looper moth (*Trichoplusia ni*, Hübner, Lepidoptera, Noctuidae) acyl-CoA  $\Delta^{11}$ -(Z)-desaturase was electroporated into *Agrobacterium tumefaciens* cells used for transformation of the *Nicotiana tabacum*. *N. tabacum* showed a substantial presence of the potential pheromone precursor, methyl (11Z)-hexadec-11-enoate (**11Z-16:Me**), in the case of several transformants (n=6). 11Z-16:Me is virtually absent in parental *N. tabacum*.

The 11Z-16:Me was isolated in bulk from a greenhouse cultivated transgenic tobacco and the corresponding acetate, alcohol and aldehyde, which are principal components of large number of sex pheromones, were semi-synthetically prepared from the *in planta* produced pheromone precursor. In several cases the attractiveness of the prepared blends was proved in field trials.

The possibility that the transgenic plant will spontaneously produce sex pheromone components was tested and the potential use of such plants in an integrated pest management will be discussed.

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