

## Abstract

The objective of this research was to reduce the use of chemical insecticides in chrysanthemum fields in highland areas by studying and selecting the active substances for attracting thrips from its food plants. The active substances were obtained from 2 sources 1) synthetic active substance (Methyl isonicotinate (MI), Sabinene and Caryophyllene) that mimic natural substances analyzing from Asteraceae flowers using Solid Phase Microextraction (SPME) and Gas Chromatography-Mass Spectrometry (GC-MS) and 2) natural active substances that extracted from fresh yellow chrysanthemum flowers using water and ethanol. The efficiency test for attracting thrips revealed that the mixture of synthetic MI, Sabinene and Caryophyllene (ratio 1: 2: 8) gave 43.89 % of attracting thrips while the natural water extract substance from fresh yellow chrysanthemum flowers amounting 5 drops yielded 61.54 %. Then, the mixture of synthetic substance and natural water extract were compared for thrips attracting efficiency. The result revealed that the natural substance (5 drops) was more efficiency yielding 75.00 %. Thus, the natural water extract substance (5 drops) was selected as active substance for attracting thrips. The active substance was added with vitamin E (1% w/w) and paraffin gel for preserving and reducing evaporation of the extract. The finished product together with plastic bottle was developed for the “prototype trap” for attracting thrips on chrysanthemum in highlands. The attractant was best used with plastic bottle and placed 4 meters separately. The study on pre-used storage conditions, from GC-MS analysis, it was found that most chemicals disappeared after one month storage. As in the field test, freshly prepared and 1-month old storage attractant showed higher activity than the older storage attractant. Finally, changing the trap every 21 days gave the highest attract activity at 303.25 trips. Therefore, changing of the attractant every 21 days was recommended. When comparing the prototypes of attractants with insecticide, fermented tobacco, and *B. bassiana* showed that the attractants prototype reduced thrips amount to 10 percent of the area. This is better than the use of commercial product and it can reduce thrips in the long term. Comparing the cost of attractant prototype production, it is cheaper than insecticide, fermented tobacco, and *B. bassiana*. In 1 crop of chrysanthemum cultivation, the cost was 637.98, 652.4, 990 and 702.4 baht, respectively. Therefore, the attractants prototype

are suitable for using in cultivating chrysanthemum. In conclusion, this research showed the “prototype trap” for attracting thrips on chrysanthemum in highlands.

**Keywords:** Attractant, thrips, trap, fresh yellow chrysanthemum flower extract

