

## REVIEW ARTICLE

# Methyl isonicotinate – a non-pheromone thrips semiochemical – and its potential for pest management

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**Abstract.** Methyl isonicotinate is one of several patented 4-pyridyl carbonyl compounds being investigated for a variety of uses in thrips pest management. It is probably the most extensively studied thrips non-pheromone semiochemical, with field and glasshouse trapping experiments, and wind tunnel and Y-tube olfactometer studies in several countries demonstrating a behavioural response that results in increased trap capture of at least 12 thrips species, including the cosmopolitan virus vectors such as western flower thrips and onion thrips. Methyl isonicotinate has several of the characteristics that are required for an effective semiochemical tool and is being mainly used as a lure in combination with coloured sticky traps for enhanced monitoring of thrips in greenhouses. Research indicates that this non-pheromone semiochemical has the potential to be used for other thrips management strategies such as mass trapping, lure and kill, lure and infect, and as a behavioural synergist in conjunction with insecticides, in a range of indoor and outdoor crops.

**Key words:** Thrips, semiochemical, kairomone, synomone, pest management strategies

### Introduction

Comprehensive research on non-pheromone semiochemicals (e.g., kairomones or synomones), or their mimics, as lures or attractants for use in thrips pest management, is expedient, because, in comparison with thrips pheromones, these chemicals can be very powerful. For example, compared

with traps without the compounds, ethyl nicotinate brings a >100x increase in trap catch for *Thrips obscuratus* in stonefruit (Penman *et al.*, 1982), and methyl anthranilate brings a >500x increase in trap catch for *Thrips hawaiiensis* in various vegetables (Imai *et al.*, 2001). Additionally, non-pheromone semiochemicals can attract more than one species of thrips, and attract both males and females (Koschier, 2008). Furthermore, semiochemical technologies have been under-exploited for small insects such as

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