

## Impact of *Harmonia axyridis* on native ladybird species in Belgium: 2. Intraguild predation revealed by exogenous alkaloid sequestration.

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The Multicoloured Asian Ladybird, *Harmonia axyridis*, has invaded the whole of Belgium in less than five years. In parallel, decline of some native ladybird species such as *Adalia bipunctata* and *A. decempunctata*, was observed in tree habitats. Laboratory studies have reported that *H. axyridis* acts as an intraguild predator, resulting in high risks for the survival of native species. In order to assess the real impact of *H. axyridis* on aphidophagous guilds, it is important to determine the frequency of intraguild predation (IGP) in natural conditions, in the presence of extraguild prey (e.g; aphids). Therefore, a method for detecting IGP by *H. axyridis* on native coccinellids was developed based on detection of exogenous alkaloids from native ladybirds in *H. axyridis* larvae using Gas Chromatography - Mass Spectrometry. The analysis of *H. axyridis* larvae collected in several habitats revealed trace of exogenous alkaloids produced by other coccinellid species: adaline (*Adalia* spp.), calvine (*Calvia* spp.), precoccinelline (*Coccinella* spp.) and propyleine (*Propylea quatuordecimpunctata*). The presence of these alkaloids in *H. axyridis* larvae confirms the existence of intraguild predation in the field towards native coccinellid species. To date, on 599 larvae *H. axyridis* collected from lime trees and analyzed, 122 larvae contained exogenous alkaloids and 90% of these alkaloids were adaline. These results support the hypothesis that IGP on *Adalia* spp. could explain the observed decline of these species in trees.

Hautier L, Grégoire JC, De Schauwers J, San Martin G, Callier P, Jansen JP, de Biseau JC. 2008. Intraguild predation by *Harmonia axyridis* on coccinellids revealed by exogenous alkaloid sequestration. *Chemoecology*, 18: 191-196

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