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Atti

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Plant responses induced by *Halyomorpha halys* (Het.: Pentatomidae)

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The Brown Marmorated Stink Bug *Halyomorpha halys* (Heteroptera: Pentatomidae), is a very polyphagous pest of fruit crops, horticultural crops and ornamentals. Native from eastern Asia, this invasive species was recorded for the first time in Modena in 2012 and is now spreading in Northern and Central Italy. With its establishment in the invaded areas, new interactions with native tri-trophic systems (plants - stink bugs - parasitoids) are expected. A plant attacked by an ovipositing stink bug may respond by the emission of induced plant synomones, which are exploited by egg parasitoids for host location (indirect defences). This mechanism had been studied for coevolved tritrophic systems at a behavioural, chemical and molecular level, and is now under investigation for novel interactions between *H. halys* and the native egg parasitoids *Trissolcus basalus*, *T. cultratus* (Hymenoptera: Platygasteridae) and *Anastatus bifasciatus* (Hymenoptera: Eupelmidae). Additionally, plants may react directly to oviposition by reducing the development and fitness of new brood (priming of direct defences). This aspect is also under investigation in plants attacked by ovipositing *H. halys* females. Molecular mechanisms of plant defence responses are evaluated through expression analyses (RT-qPCR) of marker genes for the salicylic and the octadecanoid pathways, comparing novel *versus* native systems to assess similarities and differences. Our research would be useful for evaluation of the effects of *H. halys* on native tritrophic systems and, on the other hand, biological control perspectives against this invasive species.