Interspecific plant interactions hamper host seeking efficiency of two important pests of oilseed rape

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Associative cropping of oilseed rape (*Brassica napus*) with faba bean (*Vicia faba*), traditionally used for weed control and nitrogen supply, has recently been shown to help reduce pest pressure from major pests of oilseed rape such as the cabbage stem flea beetle (CSFB, *Psylliodes chrysocephala*) and the rape stem weevil (RSW, *Ceutorhynchus napi*). Mechanisms underlying these pest-regulating effects remain poorly understood and are likely multifactorial, with previous research mainly emphasizing the visual impact of faba bean on pest migration and colonization. However, the effects of such associative system on plant chemical traits, particularly the volatilome and the resulting ecological interactions have yet to be fully understood. Recent laboratory studies have demonstrated significant shifts in the emission of key volatile compounds in oilseed rape and faba bean when grown in association compared to sole cropping systems. Consistently, olfactometer assays revealed that these altered volatile profiles can disrupt host-location mechanisms in both insect pests, leading to pronounced species-specific differences in host preference. Together, these findings provide new insights into the chemical and behavioral processes shaping pest dynamics in diversified oilseed rape cropping systems.

[1] Breitenmoser, S., Steinger, T., Baux, A., & Hiltpold, I. (2022). Intercropping winter oilseed rape (Brassica napus L.) has the potential to lessen the impact of the insect pest complex. *Agronomy*, *12*(3), 723.

[2] Magnin, L., Hiltpold, I., Jullien, A., & Baux, A. (2025). Intercropping mitigates incidence of the oilseed rape insect pest complex. *Pest Management Science*.