

Section I
Mites and Sap-Sucking Insects

INFLUENCE OF PEPPERMINT PHENOLICS ON TWOSPOTTED SPIDER MITE

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We examined fecundity and development on three peppermint leaf age classes which differed significantly ($p=0.05$) in total phenolic and monoterpene content. Young, expanding lateral leaves had the highest monoterpene and phenolic content. Mature top mainstem leaves had the lowest phenolic content, and old bottom mainstem leaves had the lowest monoterpene content. As leaf phenolic content increased, the number of eggs laid per leaf significantly decreased ($p=0.001$), and dispersal of immature mites, measured as percentage caught in sticky Tack-Trap cages, significantly increased ($p=0.001$). Development times of immatures on young lateral leaves were significantly longer ($p=0.05$) than on the more mature mainstem leaves.

Increased activity of twospotted spider mites may have resulted in reduced feeding rates, which may in turn have accounted for the lower number of eggs laid and the increased development time of immatures on peppermint leaves with high phenolic content. The monoterpene content of leaves was not significantly correlated with spider mite biology, perhaps because monoterpenes are sequestered in plant cells not fed on by spider mites. However, vapors of 5% solutions of menthol and pulegone significantly reduced oviposition and increased mortality of female mites confined in unventilated petri dishes ($p=0.05$).