Volatile Compounds of Healthy and Insect-Damaged *Hippophae rhamnoides sinensis* in Natural and Planted Forests

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Volatile compounds of healthy and insect-damaged stems of *Hippophae rhamnoides sinensis* were analysed using dynamic headspace and thermal-desorption cold-trap injector gas chromatography/mass spectroscopy (TCT-GC/MS). Sixteen compounds, belonging to alkanes, alcohols, aldehydes, esters, ketones, and ethers, were identified in the stems of healthy *H. rhamnoides sinensis*; the compounds in *H. rhamnoides sinensis* occurring naturally or cultivated in plantations were similar, but the relative contents were significantly different. In plants damaged by *Holcocerus hippophaecolus*, the nature and content of the volatile compounds were greatly changed. Butanedione and butyl glyoxylate were newly generated after damage by the pest, and the relative levels of pentanal, heptanal, eucalyptol, terpineol, and camphor were sharply increased in both naturally occurring and plantation-grown plants. *n*-Decane, *trans*-2-nonen-1-ol, and *n*-hexadecane levels increased in plants cultivated in the plantation and decreased in natural forests, whereas the levels of other types were reduced. Thus, both the nature and the content of volatile compounds of *H. rhamnoides sinensis* are affected by *H. hippophaecolus* damage, providing a theoretical basis to identify the mechanism of pest destruction.

Key words: Holcocerus hippophaecolus, *Hippophae rhamnoides sinensis*, Volatile Compounds