

Title UV-B-induced changes of volatile metabolites and phenolic compounds in blueberries (*Vaccinium corymbosum* L.)

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Abstract

There are many reports on the potential consequences of UV-B radiation on plants, but there is a rather limited understanding of the effect on secondary plant metabolites, e.g. phenolic compounds and volatiles, at all. The popularity of highbush blueberries (*Vaccinium corymbosum* L.) is mainly due to its unique flavour and its high content of bioactive compounds, i.e. phenolic compounds. However, information on UV-B elicitor mediated changes on secondary plant metabolites on blueberries is scanty. In the present study, blueberry fruits were harvested and exposed to UV-B radiation with different dosage and adaptation times. With regard to volatile secondary metabolites, C₆-aldehydes, terpenes and ketones, an increase of the relative peak area was observed after both UV-B treatments (0.075 and 0.15 Wh/m² = low [L] and high [H] dosage, respectively). Furthermore, there was a strong influence of the adaptation time. Increasing relative peak areas were determined already after a short adaptation time (2 h) at both, low and high UV-B dosages, but after 24 h adaptation time relative peak areas decreased significantly. However, alcoholic compounds, as degradation products of aldehydes, showed opposite results. In contrast, the non-volatile phenolic compounds revealed a continuously increase with UV-B intensity.