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Preharvest hormetic doses of UV-C radiation can decrease susceptibility of lettuce to *Botrytis*

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Post harvest applications of UV-C radiation have proven very efficient in reducing the development of post-harvest diseases in many species including lettuce (*Lactuca sativa* L.). Several studies suggest that UV-C radiation is effective not only because of its disinfecting effect but also because it may stimulate plant defences. Preharvest treatment with UV-C radiation may thus offer an interesting potential for lettuce protection, provided that application doses are effective while excluding any harmful effects on the plants. Here we provide evidence that 0.85 kJ.m⁻² and 1.70 kJ.m⁻² represent doses of UV-C radiation that are not deleterious for lettuce plants. We used several criteria to evaluate the effect of UV-C radiation on the plant, including histological observations; the concentration of malondialdehyde, an indicator of membrane integrity, as well as parameters derived from measurements of chlorophyll fluorescence, such as maximal efficiency of photosystem II (Fv/Fm) and the Performance Index (PI) of Strasser. We observed that a single dose of 0.85 kJ.m⁻² slightly increased plant resistance to grey mould (*Botrytis cinerea* L.) while a single dose of 1.70 kJ.m⁻² had the opposite effect. When a 0.85 kJ.m⁻² dose was applied 4 times, at two-day intervals, there was an increase in the total phenol content of leaves, and in phenylalanine ammonia lyase, catalase, and MDAHR activities. Leaves inoculated 2 days after the last UV-C treatment showed significantly increased resistance (-30%) when compared to the control.

Keywords: UV-C, *Botrytis*, fluorescence, resistance, PAL, *Lactuca*