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Poster Communication Abstract – PH.33

CHARACTERIZATION OF THE BIOGENIC VOLATILE ORGANIC COMPOUNDS (BVOCS) PRODUCED BY *VITIS VINIFERA* L. IN RESPONSE TO NEMATODE XIPHINEMA INDEX INFECTION

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One of the most harmful but underestimated menace in agriculture is represented by plant parasitic nematodes. Nematodes can directly threaten plant cultivation inducing root malformation, but they are also one of the most efficient vectors of plant virus. Both direct and indirect consequences of nematode feeding cause enormous yield and crop losses but due to lack of agrochemicals their management is still difficult. In Vitis vinifera L., the ectoparasitic nematode Xiphinema index is the unique vector of Grapevine fanleaf virus, responsible for fanleaf degeneration, one of the most widespread and economically damaging diseases worldwide. Plants cope with stress in many ways and upon pathogen attack, physico-chemical changes can occur, protecting plants from pathogens. Production of new chemicals or alterations in membrane and cell wall are fundamental to reduce disease damages but, among secondary protection systems the emission of Biogenic Volatile Organic Compounds (BVOCs) is essential to keep pathogens proliferation under control. BVOCs are specifically synthetized in response to biotic damages and the blend emitted can change according to the stressor. The study aim was to investigate changes in the emission of BVOCs in grapevine cuttings cv Chardonnay attacked by X. index. The nematode feeding process resulted in an alteration of BVOC emission profile, that was significantly different in nematode inoculated plants compared with non-inoculated controls. In nematode-treated plants a decreasing emission of monoterpenes β-ocimene and limonene was detected, while sesquiterpenes α-farnesene and α -bergamotene emission tended to increase all over the experimentation period. To evaluate nematode-feeding effect on plants by a molecular point of view, the PR1 gene expression was considered. In nematode-wounded roots the transcript level of PR1 gene was higher, whereas the leaf tissues revealed a lower expression compared to non-inoculated grapevines.