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BOOK OF ABSTRACTS

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amyloliquifaciens species group according to 16S rDNA sequence. Experiments with the steril culture filtrate of this isolate pointed out its fungistatic and fungicide activity, while no phytotoxicity was detected in leaf disk assays. The antifungal effect could be recovered in both the organic solvent extracts and ammonium sulfate precipitate of the culture filtrate, suggesting that the active agent is a lipoprotein.
According to the above results, isolate 3/1 can be an efficient biocontrol agent against GTDs with a special emphasis on its ability to grow in the host tissues and the secretion of effective antimycotic molecules.

P4.1-068

EVALUATION OF WILDFIRE DISEASE CONTROL EFFECT BY VARIETY ACCORDING TO BORDEAUX MIXTURE TREATMENT IN ORGANIC SOYBEAN SEED PRODUCTION

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Text
It is necessary to develop control technologies for problematic diseases such as wildfire for organic soybean cultivation. This study evaluated the efficacy of 4-4 formula Bordeaux mixture (BM) treatment on wildfire disease control efficacy by soybean variety before and after the rainy season. The soybean varieties announced in the test were Daewon, Daechan, and Nogpoong, and 4-4 BM was prepared and used in the laboratory. 4-4 BM was sprayed three times at 7-day intervals from the end of July, the rainy season, and was additionally treated once after seed formation. The occurrence of wildfire disease was significantly lower in the three soybean cultivar fields treated with 4-4 BM than in the non-treated field until harvest season. Among the three soybean cultivars, Nogpoong soybean was found to be susceptible to wildfire disease. The incidence of wildfire disease in the Nogpoong soybean block treated with 4-4 BM was significantly lower than that in the untreated block. Through the above results, it was revealed that 4-4 Bordeaux mixture treatment will be an organic agricultural material that can effectively control wildfire disease in the organic Daechan and Daewon soybean farming.

P4.1-069

INGADOSIDES A-C, ACACIC ACID-TYPE SAPONINS FROM INGA SAPINDOIDES WITH POTENT INHIBITORY ACTIVITY AGAINST GRAPEVINE DOWNY MILDEW AS POTENTIAL ALTERNATIVES TO COPPER FUNGICIDES

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Text

The reduction of copper-based fungicides has a high priority in European policy as well as in organic agriculture. To successfully reduce copper use, preventive strategies have to be fully implemented, and several substitution products need to be brought to the market. Plant-derived plant protection products could provide sustainable and environmentally friendly alternatives. As part of a project aiming at the discovery of such new products, we screened a library of more than 3000 plant extracts against important plant pathogens. One of the extracts with promising activity against grapevine downy mildew (*Plasmopara viticola*) was an 96% ethanolic extract from the leaves of *Inga sapindoides* (*in vitro* MIC_{100} 25 µg/mL). On grapevine plantlets under controlled conditions, compared to non-treated plants, the *I. sapindoides* ethanolic extract reduced grapevine downy mildew by 96%-97% at 0.5 mg/mL, and its efficacy was comparable to a standard copper treatment (two independent experiments). Targeted isolation of the active constituents resulted in the characterization of three acacic acid-type bidesmosidic saponins with high antifungal activity (in vitro MIC_{100} values of 3 - 6 µg/mL). *I. sapindoides*, a tree which is often cultivated for shading coffee plantations in Central America, may represent a sustainable source of fungicidal products to be used in the replacement of copper.

P4.1-070

OZONATED WATER APPLICATION AS AN INNOVATIVE TOOL FOR ELICITATION OF PLANT DEFENSE RESPONSE: THE CASE OF BEGONIA HYBRIDA-BOTRYTIS CINEREA PATHOSYSTEM

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Text

Ozonated water (OW) represents an innovative and eco-friendly solution for inhibiting pathogens in pre- and post-harvest. When bubbled into water, ozone dissolves partially forming reactive oxygen species, that can exert positive effects against microorganisms and contaminants. It can be directly applied as soil drench or sprayed on leaves by controlling plant diseases and avoiding chemical residues. Ozone-treated products are safe and sustainable, and this makes OW a promising approach when low impact management practices are requested. This is the case of edible flowers, known to be highly perishable and susceptible to several fungal pathogens. Here, the application of OW at different concentrations (200-800 ppb) was firstly tested in vitro on *Botrytis cinerea*, *Fusarium oxysporum*, and *Verticillium dahliae* showing a high inhibitory effect on spore germination in liquid solution (-60% at 400 and 600 ppb). According to these preliminary results, in *Begonia hybrida* plants artificially inoculated with *B. cinerea*, pot irrigation supplemented with OW (400 ppb, for 2 weeks) resulted increased number of flowers (+50 compared to uninoculated and untreated ones) with higher water content (+32%). Considering the scarce development of visible injuries associated with *B. cinerea* on petals, the obtained data indicate the priming effects of OW treatment and the potential of this sustainable technique in limiting the damage of necrotrophic fungi in edible flowers.