

Water phytosanitary risk management in soilless crops

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Protected cultures offer the opportunity to manage the majority of production factors such as the regulation of mineral and microbiological environment of plants' roots via soilless crops implementation. To reduce the high environmental impact of such cultures (consumption of 10000 m³ of water/ha/year and throwing of 1000 kg of nitrogen/ha/year), recycling drainage water, consisting in reusing the nutritive solution the plants didn't absorb thanks to an efficient mineral management, is a way to reduce fertiliser's costs while maintaining production quality. However this technique enhances pathogens multiplication and dissemination (bacteria such as *Ralstonia solanacearum*... and fungi such as *Phytophthora spp.*, *Pythium ultimum*...) coming from irrigation water (reserve of rainwater, river, forage, irrigation network...), plants, air... Risk assessment for plant health based on microbiological analyses determining the nature and density of pathogenic agents is too expensive and not reliable for routine diagnostics. To insure a sanitary guarantee for the cultures, the choice of a particular or combining preventive methods of phytosanitary risk management (physical or chemical total or partial disinfection via UV treatment or slow sand filtration; biological control agents implementation...) has to take into account various factors: irrigation water sanitary quality, volume to be treated, physico-chemical properties of the solution, cost of investment and functioning... To get a better understanding of microflora colonizing the rhizosphere in soilless cultivation, a highly manageable hydroponic system, the Nutrient Film Technique was investigated. PCR-SSCP molecular fingerprinting method showed nutritive solution physico-chemical management could enhance roses plants roots' microbial communities robustness in order to exclude soilborne disease.

Palabras Claves/Key Words: soilless growing systems, soilborne pathogens, roots' microbial communities, water disinfection, biological control agents, PCR-SSCP (Polymerase Chain Reaction- Single Strand Conformation Polymorphism)