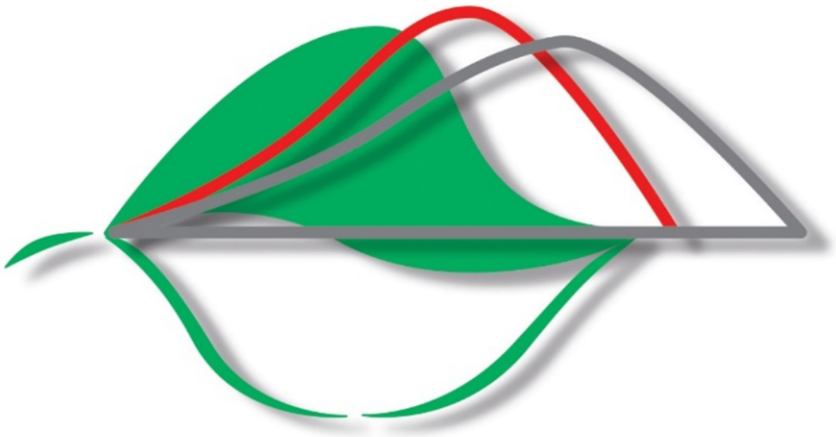
20th International Reinhardsbrunn Symposium

Modern Fungicides and Antifungal Compounds



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Program and Abstracts

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DPG

ID 21 The potential of the RNAi strategy in the control of *Botrytis cinerea* in horticultural crops

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Botrytis cinerea, the causal agent of the gray mold disease, is one of the main limiting factors of horticultural crops production worldwide, consuming up to 40% of fungicides in its control. However, this fungus has been categorized by FRAC (*Fungicide Resistance Action Committee*) as a phytopathogen with a high risk for fungicide resistance development, a fact that has been demonstrated in our country. In addition, and according to the "farm to fork" strategy of the recent European Green Deal, the diversity of fungicides available to growers will be reduced by 50% in 2030. For this reason, alternative control tools and molecules with fungicide activity are, more than ever, needed to control this important disease. In this study, we intend to check if the efficacy of the emerging RNA interference (RNAi) strategy, called "spray-induced gene silencing" (SIGS), could be a valid sustainable solution and an alternative to the use of conventional fungicides for the control of *B. cinerea*. For this purpose, several double-stranded RNA (dsRNA) has been designed against targets genes involved in the virulence/pathogenicity of the fungus. Preliminary results, obtained in *in vivo* assays, indicated that the application of dsRNAs significantly reduces the development of the fungus, demonstrating the potential of the SIGS technique for the control of *B. cinerea*. On the other hand, and to improve the application of these oligonucleotides in the field, their encapsulation to create nanoparticles will be carried out. If we succeed, new molecules with fungicidal action, could be included into the several strategies carried out to obtain a sustainable plant protection control programs in the field.

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