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Poster Abstract – C.40

THE CO-EXPRESSION IN TOBACCO OF A CHITINASE AND A RIBOSOME-INACTIVATING PROTEIN INCREASES RESISTANCE TO *BOTRITYS CINEREA*

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Ribosome-inactivating proteins (RIP) and chitinases (CHI) are among the most useful and well-characterised proteins able to enhance plant resistance against different pathogens. These proteins inhibit fungal growth *in vitro* through different mechanisms and their heterologous expression in plant has been reported to increase protection against phytopathogenic fungi.

To study the additive or synergistic effect against phytophagous fungi while reducing the risk of the onset of resistances in pathogens, we co-expressed in tobacco the *PhRIPI* gene, encoding a RIP isolated from leaves of *Phytolacca heterotepala* and the *ChiA* gene, encoding for the chitinaseA isolated from the *AcMNPV* baculovirus (*Autographa californica* multiple nuclear poyhedrosis virus).

To this aim, transgenic lines, constitutively expressing the *ChiA* gene under the control of the CaMV promoter, were crossed with transgenic lines expressing the *PhRIPI* gene under the control of a wound-inducibile promoter.

Hybrid lines were characterized by PCR and Western-blot to monitor the presence and the expression of the two recombinant proteins. Three hybrids co-expressing the two proteins were selected and tested against *Botrytis cinerea.* Interestingly, these hybrids showed a significant reduction of leaf damage after the infection with the pathogen in comparison to both parental lines. The implications of "gene pyramiding" approach in the production of fungi resistant transgenic plants are evaluated and discussed.