A cerato-platanin-like protein HaCPL2 from *Heterobasidion annosum sensu stricto* induces cell death in *Nicotiana tabacum* and *Pinus sylvestris*

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The cerato-platanin family is a group of small secreted cysteine-rich proteins exclusively from filamentous fungi. They are found to be involved in the interactions between fungi and plants. Majority of the reports on cerato-platanins have been from ascomycetes, except *Moniliophthora perniciosa*. We have previously reported on gene duplication of cerato-platanins in Basidiomycota suggesting higher functional diversification than in Ascomycota. In the basidiomycete conifer pathogen *Heterobasidion annosum sensu stricto* (s.s.), three cerato-platanin homologues were identified. Expression of the homologues under various conditions as well as their roles in *H. annosum* s.s.-*Pinus sylvestris* (Scots pine) pathosystem was investigated.

Results showed HaCPL2 had the highest sequence similarity to cerato-platanin from *Ceratocystis platani* and hacpl2 was significantly induced during nutrient starvation and necrotrophic growth. The produced recombinant HaCPL2 induced in *Pichia pastoris* hypersensitive cell death, phytoalexin production and defense gene expression mediated by SA and JA in *Nicotiana tabacum* leaves. It also induced necrosis and defence gene expression mediated by JA and ET and inhibited root growth in Scots pine seedlings.

Our results represent the first evidence on a putative role of an elicitor or effector from *H. annosum* s.s. on host and non-host plants.