

ELICITOR INDUCED DEFENCE RESPONSES AGAINST OF BACTERIAL SOFT ROT IN ZANTEDESCHIA

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During the last decade, soft rot in flower bulbs caused economic losses up to eight million Euros per year. Bulbous ornamentals such as *Hyacinthus*, *Dahlia*, *Iris*, *Muscari*, *Freesia* and *Zantedeschia* can be infected. Soft rot in *Zantedeschia* (calla lily) is caused by *Pectobacterium carotovorum* subsp. *carotovorum* (former *Erwinia carotovora* subsp. *carotovora*). Two commercial elicitors and two pure compounds were tested for their efficacy in reducing disease development by induced resistance. *Zantedeschia* plants were grown in potting soil in the greenhouse at 18-20°C and sprayed (2.5 ml/plant) every ten days with a dilution series of salicylic acid (0.02, 0.2 and 0.4 mMol), jasmonic acid (0.5 and 1.0mMol), ArgicinPlus (0.2, 2.0, 4.0 ml/l) or experimental product B (0.01, 0.1 and 0.2 g/l) in 6 replicate plants per treatment. Control plants were sprayed with water. After four (salicylic acid) to six (other treatments) applications, leaf samples were analysed for salicylic acid content, using LCMS. Leaf disks (2 cm diameter; 4 disks per plant) were taken and tested in vitro for lesion development after artificial wounding (needle puncture) and inoculation with a *Pectobacterium* suspension (10 µl droplets per leaf disk, 10⁶ CFU/ml) and two days incubation at 23°C. In the greenhouse, a *Pectobacterium* suspension (10⁹ CFU/ml) was poured on the soil around the plants (40 ml/plant) in order to assess in vivo disease development. The experiment was performed twice (in 2012 and 2013). Results show little elevation of salicylic acid content in leaves after application of the highest concentrations of salicylic acid (2012) and ArgicinPlus (2013) compared to the control treatment.

Other treatments had no effect on salicylic acid content in the leaves. Lesion development on leaf disks showed no significant effects of treatments on reduction of leaf tissue maceration in 2012. In 2013, all treatments with ArgicinPlus and product B showed reduction of macerated tissue compared to the control treatment. In both years, disease development in the greenhouse was minimal with no differences between treatments, except for the jasmonic acid treatment which showed phytotoxicity (severe stunting and chlorosis of the leaves).

Key words: *Pectobacterium carotovorum*, flower bulbs, calla lily, salicylic acid, jasmonic acid