

**Title** Control of grey rot of apple fruits by biologically active natural products

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#### **Abstract**

Biorend SC (chitosan), BC-1000 EC (grapefruit extract plus bioflavonoids) and ECO-100 SC (bioflavonoids plus organic acids, citric phytoalexins, fatty acids, glycerides and sugars), respectively, suppressed grey rot of apple caused by *B. cinerea* by 80.1%, 79.0% and 76.5% when used as post-harvest treatments under controlled conditions. When applied as combined pre- and post-harvest treatments Biorend SC inhibited fruit rot by 49.9 %, while BC-1000 EC and ECO-100 SC were ineffective. None of the products inhibited fruit rot when applied as pre-harvest treatments under controlled conditions or as post-harvest treatments under commercial conditions. The algal polysaccharide ulvan used in post-harvest treatments suppressed grey rot by 56.0% under controlled conditions, but had no inhibitory effect on combined pre- and post-harvest treatments. The inability of products to activate defense mechanisms (chitinase and peroxidase) of fruits was consistent with the unsuccessful control of rot by pre-harvest treatment. The results suggest that the natural products used have potential for use in integrated management of *Botrytis* rot when applied after harvest.