Objectives and Rationale

In South Africa, brown rot has been exclusively attributed to M. laxa. M. laxa infects fruit, twigs and can remain latent during unfavourable conditions. Once fruit ripen or conditions improve, disease symptoms develop, resulting in brown decayed fruit. The nature of plums therefore greatly influences their shelf life. The commercial value of plums is therefore limited by their highly active metabolism and susceptibility to decay. The objectives of this study was to develop gum Arabic composite edible coatings incorporating thymol and salicylic acid; evaluate its effects on *in vitro* and *in vivo* activity of *B.cinerea* and *M.laxa*; and investigate their potential in delaying respiration and ripening.

Methods

The effect of thymol and salicylic acid (SA) on mycelial growth of *B. cinerea* was evaluated using the method described by Karaca *et al* on 90mm plastic Petri dishes with PDA amended at 45-55°C with sterile aqueous solutions of bioactive. The concentrations tested for both bioactive agents were 0, 1.0, 1.5, 2.0 and 2.5mM. This was followed by a curative activity of the antifungal coatings. Quality attributes such as mass loss, peel and flesh colour, firmness, total soluble solids, titratable acidity, pH, ethylene production, respiration rate and shrivel and decay incidence was measured.

Key Results

Results are being analyzed. However, preliminary observation showed that despite the range of concentrations tested in vivo for the bioactive agents, fludioxonil was most effective at reducing the growth of both pathogens. Based on literature, SA has great potential in disease reduction and should continue to be explored. The drawback of SA is its limited solubility and other solvents may produce more favourable results. Thymol has shown to be a potent antimicrobial agent in vitro and shows great promise inhibiting fruit pathogens. The limitation of thymol is related to its strong smell and the bioactive might be more suited to fruit possessing a thicker peel.

Conclusion and Discussion

Research is ongoing. Detailed conclusion will be made in the next reporting period.