The Use of Chitosan in Extending the Vase Life of Cut Chrysanthemum and *in vitro* Effect on *Colletotrichum gloeosporioides*, The Causal Agent of Anthracnose Disease of Papaya

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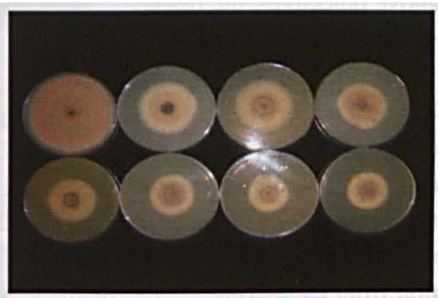
A study was carried out to look at the potential use of chitosan as a vase life preservative. Chitosan was used to control pathogenic fungi and bacterial found in the vase solution after a substantial period of time the flowers were held in the vases. The chrysanthemum (*Dendranthema morifolium* Ramat) cut flowers were treated with chitosan at 0, 25, 50, 75 and 100 mg L^{-1} dissolved in 0.05% ascorbic acid and displayed in the environmental conditions, 25°C±2°C, 70% RH and 15 µmol m^{-2} s^{-1} light intensity from cool-white fluorescent lamps for 12 hours. The results showed that chitosan contained preservative vase solutions at 25 and 50 mgL^{-1} significantly increased water uptake, fresh weight and delaying wilting of cut flowers compared to the control. However, chitosan at higher concentrations, 75 and 100 mg L^{-1} were not effective in controlling vase life of the cut flowers. The former two concentrations were also found to be able to reduce the number of bacterial colonies and inhibited the fungal growth found in the vase solutions. *In vitro* observations found that chitosan at 50, 75 and 100 mgL^{-1} inhibited the diameter of mycelial growth 2 days after incubation as well as reducing bacterial colonies.

Another study was also carried out to evaluate the effects of chitosan on anthracnose caused by *Colletotrichum gloeosporioides* in Papaya fruits *in vitro*. More than 50% inhibition of *Colletotrichum gloeosporioides* mycelium was found in petriplates when 1.75% chitosan was incorporated in the media. It was found that the chitosan markedly reduced the mycelium growth of *C. gloeosporioides* with the greater effect at higher concentrations. After seven days when the control reaches the end of plate, the diameter of fungal colony (PDA) containing 0, 0.3, 0.5, 0.75, 1. 1.25, 1.5and 1.75% chitosan were 80, 49.9, 50.3, 44.6, 46, 42.2 and 38.7mm, respectively.

Cut chrysanthemums in different concentrations of chitosan being displayed in the Postharvest Lab.



Chitosan markedly reduced the mycelium growth of C. gloeosporioides along with increased concentrations (Left to right, up and down)

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