Fungi Associated with Stem-end-rot of "Karuthacolomban" mango(*Mangifera indica*) and possible ways of infection.

A project report submitted

By

Indurage Sujatha Kumari

To the

Faculty of Graduate studies

In partial fulfillment of the requirement

For the award of the degree of

Master of Science

Of the

Department of Microbiology

University of Kelaniya

Sri Lanka

2005

Abstract

Mango (*Mangifera indica*) is one of the popular and well adopted fruit crops in Sri Lanka. It is grown from home garden level to commercial orchard level.The major problem associated with the fruit is post-harvest loss due to disease and pests. Among post harvest diseases, stem end rot caused by fungi play a major role. Of the several cultivars of mango available in Sri Lanka, the variety "Karuthacolomban" is the most commonly subjected to the disease. Although post harvest dipping in fungicides and hot water treatment are practiced commonly to prevent the disease, stem end rot still remains a serious problem. The present study was carried out to find the major causative organisms and their mode of infection to the fruit stem end of mango.

From these fungi isolated from diseased fruits showed *Lasiodiplodia theobromae* was the most predominant. Isolations from twigs, leaf petioles, fruit pedicels showed in addition to *L.theobromae*, *Phomopsis mangiferae*, *Pestalotia mangiferae* and *Colletotrichum gloeosporioides* were also present. Further, these fungi were found to be both epiphytic and endophytic. Therefore, endophytic fungi transmit to the fruit through fruit pedicel. Of the fungi isolated *L. theobromae* was isolated at high frequency from all the tissues both epiphytically and endophytically. Isolations made from immature fallen fruits showed that they were highly infected with non stem end rot causing fungi.

Spore germination of *C. gloeosporioides*, *L. theobromae* and *Pestalotia mangiferae* were induced by exposing to ethylene. Ethylene produced by the ripening fruits can induce the spore germination, leading to extensive rot.

As a post harvest control measure the possibility of using 1% $NaHCO_3$ was also tested. Although 1% $NaHCO_3$ gave 100% control of *L.theobromae in vitro* it was reduced to 50% under *in vivo* condition.

Since stem-end rot pathogens present endophytically, the efficiency of post harvest treatment alone is not a successful method of controlling the problem. Integrated disease management must be applied to minimize the post harvest loss due to stem end rot.