

Morphological Characterization and Molecular Identification of Stem-end Rot Associated Fungal Species Isolated from ‘Karutha Colomban’ Mango Fruits in Sri Lanka

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ABSTRACT

Purpose: Stem-End Rot (SER) is one of the most frequently found mango postharvest diseases in many countries including Sri Lanka. Availability of a significantly detailed study on morphological and molecular characterization of the SER associated fungal species is comparatively low. The present study has been carried out considering the above fact.

Research Method: SER disease associated fungi were isolated and identification was carried out using morphological characteristics. Identification was confirmed by phylogenetic analysis of newly generated ITS sequencing data using Maximum Likelihood (ML) with RAxML software (Ver.8.2.10).

Findings: From the morphological studies it was observed that the fungal isolates SER1, SER2, SER3 and SER6 produced conidia on Potato Dextrose Agar. Both morphological and molecular results revealed that the isolates of SER1, SER4, SER5, and SER6 which were isolated from diseased Karutha Colomban mango fruits with SER (in Sri Lanka) belong to *Lasiodiplodia* sp., *Nodulisporium* sp., *Xylaria feejeensis* and *Pestalotiopsis* sp. respectively. Both SER2 and SER3 were confirmed as *Phomopsis* sp. During the present study two new fungal species (*Xylaria* spp. and *Nodulisporium* spp.) were also identified for the first time from SER of Karutha Colomban mango fruits.

Research Limitations: The pathogenicity of these isolates will be tested in near future, since the study was mainly focused on the isolation and identification of the SER associated fungal species.

Originality/ Value: Results of the present study will be very valuable for stakeholders in Agricultural sector, before designing control strategies at post-harvest level in order to minimize the loss and extend the storage life of mango.

Keywords: *Mangifera indica* L., stem-end rot pathogens, *Lasiodiplodia theobromae*

INTRODUCTION

Mango (*Mangifera indica* L.) which belongs to family Anacardiaceae is one of the most important and widely cultivated fruit species of the tropical world (Bandyopadhyay *et al.*, 2014). Asia is the largest mango producer, representing more than 75% of global production. This crop is adaptable to a wide range of climate, from wet tropical to dry subtropical (Abd-Alla and Haggag, 2013). Due to the delicious taste and high calorific value, it has become one of the most desirable fruits in the international market

(Diedhiou *et al.*, 2007). Present extent under mango cultivation in Sri Lanka is about 27,500 acres. It is Predominantly, grown in *Kurunegala*, *Anuradhapura*, *Hambanthota*, *Puttalam*, *Moneragala*, Jaffna Districts and in *Mahaweli* Systems H and C. As a fresh fruit, mango has a high demand in local market. There is potential to earn, a considerable amount of foreign

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