

Effect of fungicide treatment on foliar fungal endophyte diversity in mango

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Treatment with hexaconazole, a systemic fungicide, reduced the Colonization Frequency percentage (CF %) of foliar fungal endophytes of *Mangifera indica* L. The CF % of the endophytes in treated leaves was low during the treatment; it gradually rose to reach near-control level during the post spray period. Although the species diversity of the endophyte assemblage of control and treated leaves did not vary significantly, the composition of the assemblage varied. A correspondence analysis showed that the fungicide treated leaves were colonized by a few endophytes that were absent in untreated leaves.

Keywords: fungal endophytes, systemic fungicide, hexaconazole, competitive release

Horizontally transmitted fungal endophytes which cause discrete and symptomless infections in the aerial organs of plants have engaged the attention of mycologists for various reasons. Some of them include their metabolic capability to produce novel chemicals (Gunatilaka 2006, Huang *et al.* 2007, Lösger *et al.* 2008), the ability to enhance their host fitness to abiotic (Redman *et al.* 2002) and biotic stress (Arnold *et al.* 2003), and as indicators of fungal diversity (Arnold & Lutzoni 2007, Murali *et al.* 2007). Although no plant studied for its fungal endophytes is free of these symbionts, we are yet to gain a reasonable understanding of the interactions between endophytes and their plant hosts (Arnold & Engelbrecht 2007, Sirenberg *et al.* 2007). Since endophyte infections are natural and universal, plants are treated with systemic fungicides to obtain 'endophyte-free' systems for studying the influence of endophytes on plants (Hill & Brown 2000, Gamboa *et al.* 2005). However, there are few studies on the effect of fungicide treatment on fungal endophyte assemblages of a plant host. It is possible that foliar fungal endophytes are affected by fungicide treatments meant for protecting plants from fungal pathogens. Therefore, we studied the effect of