

Anti - Fungal Activity of Selected Medicinal Plants Against *Colletotrichum gloeosporioides* Causing Onion Leaf Twister disease (OLTLD)

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Abstract

Onion Leaf Twister disease (OLTLD) is a catastrophic fungal disease of small onion caused by *Colletotrichum gloeosporioides* in the dry zone of Sri Lanka. OLTLD is characterized by twisted leaves with chlorosis, abnormal necks and elongated bulbs. Farmers rely on fungicides to manage this seed born disease. Current Sri Lanka's Agricultural policy bans the use of synthetic agrochemicals and promote the growers to organic cultivation of onion. Therefore, an investigation was carried out to find out a sustainable solution to manage OLTLD using botanicals. Medicinal plants showing antifungal properties such as rhizome of *Acorus calamus*, leaves of *Aegle marmelos*, *Ocimum basilicum*, *Ocimum sanctum*, *Ocimum tenuiflorum* and *Ricinus communis* (wild) were selected and aqueous extracts of 10%, 20% and 30% were tested under laboratory condition using poison food technique. The experimental setup was arranged in a CRD design. The data obtained were subjected to ANOVA using SAS 9.1 and DMRT test was administrated to identify the best treatment at $P < 0.05$. The inhibition percentage was significantly lower in 10% and 20% concentration of all the botanicals treated trails than the 30% concentration. Highest inhibition percentage of 78.04 ± 0.12 % was exhibited by *A. calamus* after 9th day of inoculation in 20% concentration extracts. Whereas prominent results were derived from 30% of *A. calamus* rhizome extracts by giving significantly best mycelial inhibition of 82.4 ± 0.06 % at 11th day of inoculation followed by leaves extract of *A. marmelos* (81.4 ± 0.12 %) and *R. communis* (79.1 ± 0.43 %). In conclusion, rhizome extracts of *A. calamus* could be an alternate remedy to manage OLTLD. Field studies are in progress for further confirmation of the *in-vitro* findings.

Keywords: *Acorus calamus*, biorationals, Leaf Twister disease, Onion, Medicinal plants