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A study on cocoa dieback disease in Sri Lanka

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Cocoa (*Theobroma cacao* L.) is one of the most important beverage crops among Export Agricultural crops. Among the diseases of cocoa, dieback disease is reported from countries such as Australia, Africa and Cameroon. Similar disease conditions were shown by the cocoa plants (about 35 years old) found in the nursery, Research station, Department of Export Agriculture, Matale. Symptoms of the disease initiate from the outer twigs as yellowing. Damage may then extend along the whole branch, reaching the main trunk, eventually resulting in tree death. Therefore, this study was carried out in the laboratory of the Research Station, Department of Export Agriculture, Matale to find out the causative organism and to screen a suitable fungicide to control the disease. Twenty infected plant twigs were collected and about 1cm^2 pieces of infected tissues were removed from disease progressive area and cultured on Potato Dextrose Agar (PDA) plates after surface sterilization with 1% Sodium hypochlorite. Most frequently isolated pathogen was identified as *Botryodiplodia* sp. Pathogenisity of *Botryodiplodia* sp. was tested by inoculating twenty unwounded and twenty wounded stems of cocoa seedlings with 5 mm discs of PDA containing *Botryodiplodia* sp. Twenty cocoa seedlings were kept as control without inoculating or wounding. Wounded stems of cocoa seedlings showed the disease symptoms and reisolation of *Botryodiplodia* sp. proved the pathogenisity of the fungus. Three fungicides Heterocyclic compound(Captan® 50%(w/w) W.P .contact fungicide) Thiophanate methyl (Topsin® 70% (w/w) W.P).and Benzimidazole (Carbendazim® 50% w/w systemic fungicides) were screened in the laboratory with a control. *Botryodiplodia* sp was cultured on PDA plates in concentrations of 100ppm, 250ppm and 500ppm of above fungicides. After three days of incubation period at room temperature (28^{0}C-30^{0}C) colony diameter was measured of the fungus. Results showed that Benzimidazole can control the growth of mycelia even at the smallest concentration *i.e.*100ppm than Heterocyclic compound and Thiophanate methyl respectively. Therefore, Benzimidazole was selected as the suitable systemic fungicide which can be sprayed on to the canopy of infected cocoa trees along with the cultural practices.

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