ANTIFUNGAL ACTIVITY OF STEM BARK, FRESH AND DECOMPOSING LEAVES OF SOME DIPTEROCARPACEAE TREE SPECIES

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Fresh stem-bark, young, mature senesced and decomposing leaf samples of some Dipterocarpaceae tree species were examined for antifungal substances using TLC-Cladosporium bioassay. The species used in this study were Dipterocarpus alatus, D.glandulous, D.hispidus, D. zeylanicus, Hopea brevipetiolaris, H.jucunda, H.odorata, shorea affinis, S.congestiflora, S.disticha, S.oblongifoloa, S.robusta, S.trapezifolia, S.stipularis, Stemonoporus canaliculatus, S.reticulatus, S.ceylanicus and Vateria copallifera. Concentrated cold acetone extracts of these produced either one or two very prominent inhibition areas on TLC plates. Antifungal activity was benerally greater in the bark extracts compared to those of the leaf. Extracts of the fresh, senesced or decomposing leaves exhibited similar antifungal activity. Based on Rf values and available literature the inhibitory substance common to the species tested was tentatively identified as stilbenoid type phenolic polymer. These polymers of Dipterocarpaceae are regarded as being derived from a monomer, resveratrol (3,5,4 trihydroxy stilbene). For example viniferin reported from grape is derived from two resveratrol molecules and is established as a phytoalexin. Phenolic polymers in the Dipterocarpaceae, however, appear to be preformed fungal inhibitors. These experiments also showed that the antifungal activity of the leaf persists during decomposition and this may have an effect on fungal decomposition of Dipterocarpaceae leaves.