Antifungal compound isolated from Catharanthus roseus L. (pink) for biological control of root rot rubber diseases

ABSTRACT

Rigidoporus microporus, Ganoderma philippii, and Phellinus noxius are root rot rubber diseases and these fungi should be kept under control with environmentally safe compounds from the plant sources. Thus, an antifungal compound isolated from Catharanthus roseus was screened for its effectiveness in controlling the growth of these fungi. The antifungal compound isolated from C. roseus extract was determined through thin layer chromatography (TLC) and nuclear magnetic resonance (NMR) analysis. Each C. roseus of the DCM extracts was marked as CRD1, CRD2, CRD3, CRD4, CRD5, CRD6, and CRD7, respectively. TLC results showed that all of the C. roseus extracts peaked with red colour at Rf = 0.61 at 366 nm wavelength, except for CRD7. The CRD4 extract was found to be the most effective against R. microporus and G. philippii with inhibition zones of 3.5 and 1.9 mm, respectively, compared to that of other extracts. These extracts, however, were not effective against P. noxius. The CRD4 extract contained ursolic acid that was detected by NMR analysis and the compound could be developed as a biocontrol agent for controlling R. microporus and G. philippii. Moreover, little or no research has been done to study the effectiveness of C. roseus in controlling these fungi.