Antifungal activity of the essential oil and semisynthetic derivatives dillapiole against wood degrading fungi

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Fungi are biological agents that attack wood, as are conditions for use of wood constituents for its development. The control of wood decaying fungi susceptible to, it is usually done with the use of chemicals such as a fungicide Dynasty. Piper genus species are sources of bioactive essential oils and are of great interest to the industry. Previous studies have demonstrated fungistatic activity of etheric derived from dillapiol (methyl dillapiol ether, ethyl dillapiol ether and butyl dillapiol ether) using the method bioautographic front of *Pycnoporus sanguineus*, *Trametes villosa* and *Lenzites trabea* fungus (1). Essential oil (2.0 g) of *Piper aduncum* was isolated major substance dillapiol (831,3mg) by CC silica gel with Hex and EtOAc gradient, and identified by spectroscopic methods. From the dillapiol synthetic derivatives have been prepared and all were isolated by flash CC and preparative chromatography, whose identities were confirmed by ^{1}H NMR and MS (2). This study aimed to evaluate the antifungal activity of the essential oil, dillapiol and its derivatives (D1: Diacetyl dillapiol; D2: isopropyl ether dillapiol; D3: hydroxy monobenzoil dillapiol; D4: propyl ether dillapiol; D5: dihydroxy dillapiol; D6: diol carbonylated; D7: 2,2-dimethyl methylenedioxy dillapiol; D8: dillapiol octyl ether) against wood degrading fungi, as an alternative in the search for wood preservatives. These substances were tested for fungistatic activity using bioautography method front fungi *Pycnoporus sanguineus*, *Trametes villosa* and *Lenzites trabea*. 1mg of each substance was diluted with Hex and applied in conc. 10 and 40µg TLC plate on silica gel G60 Merck F_{254} (2 x 5cm) previously autoclaved at 120°C for 15min. After 6h the plates and the inoculum of the fungus were placed on malt agar culture medium and incubated for 72h in an oven at 25-27°C. 15 days were made evaluations observing that the essential oil showed activity inhibiting the growth of fungus *T. villosa* in conc. 40µg. Derivatives only the D4 showed activity inhibiting the growth compared to the three fungi in both conc. 10 and 40µg. The D2 and D3 were inhibited front fungi *P. sanguineus* and *T. villosa* in conc. of 40µg. Derivatives D1, D6, D7 and D8 showed only front inhibiting the fungus *L. trabea* in conc. 10 and 40µg. Secondary D5 showed no activity against the tested fungi.

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