



Bioactive Compounds in Tombili Seeds and Tubile Roots as the Alternative for Synthetic Pesticide to Protect Wheats from Insects and Pests

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Abstract: This study was intended to isolate and characterize the pesticide property of secondary metabolite compounds in tombili (*Caesalpinia bonduc* (L.) Roxb) seed and tubile (*Derris elliptica* (Roxb) Benth) root. The pure compound isolated from 1.5 kgs tombili seeds and 500 grams tubile roots were macerated using methanol to get methanol extracts of 85.79 and 30 grams, respectively. Phytochemical testing showed positive results for flavonoid, terpenoid, alkaloids, tannin and saponin test. An insecticide bioactivity testing for both plants showed that the most effective result was achieved for ethyl acetate fraction in concentration of 0.05%. IR spectrophotometer for tombili seeds showed functional groups O-H, aliphatic stretching C-H, stretching C=O, aromatic stretching C=C, bending C-H, and stretching C-OH that marked the presence of terpenoid compounds. This result was supported by a UV-Vis spectrophotometer data with 236.00 nm wavelength absorption, possibly correlated with the transition of electrons that not bound to the anti-bonding orbital ($n \rightarrow \pi^*$) caused by the presence of the chromophore group C=O. Purity test for tubile roots only resulted in a single spot, therefore the phytochemical test was conducted and showed positive result for flavonoid. This result was supported by two bands resulted from UV-Vis spectrophotometer data with wavelength 280 nm and 235.50 nm for tape-1 and tape-2, respectively. The IR spectrophotometer also showed the functional groups O-H, stretching C-H, stretching C=O, aromatic stretching C=C, bending O-H, bending C-H, and alcoholic stretching C-O, indicating that the isolate was a flavonoid compound.

Keywords: Isolation, characterization, secondary-metabolites pesticide, *Caesalpinia bonduc*, *Derris elliptica*.

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