

TOXICITY OF *TERMINALIA ARJUNA* (COMBRETACEAE) USING BRINE SHRIMP ASSAY

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Terminalia arjuna (*Kumbuk*) is a herbaceous, ever-green tree, standing 20 - 30 m above ground level, in the Family *Combretaceae*. The plant has shown many medicinal and antimicrobial properties in previous studies. Even though the medicinal value of *T. arjuna* has been extensively studied, there are no toxicity assays. The objective was to identify the minimum toxic concentration of the crude extract of *T. arjuna* using a brine shrimp assay. The brine shrimp lethality assay of the aqueous extracts of the *T. arjuna* plant was used to determine the toxicity of the *T. arjuna* bark aqueous extract. The air-dried plant material was powdered and extracted into distilled water in a 1:3 ratio using the laceration technique. The dilution series was prepared with two-fold dilution, one gram of bark aqueous extract powder dissolved in 4 ml of distilled water, starting from 1g/ml to 1.9×10^{-3} g/ml concentration. Their ability to kill a cultured larva (nauplii) was observed. Ten larvae were exposed to plant extract for 24 h. The number of live larvae was observed using the naked eye, and the mortality percentage and LC₅₀ (the median lethal concentration) were calculated using *GraphPad Prism* software. The study was triplicated. The mortality percentage and LC₅₀ were calculated using *GraphPad Prism* according to a log concentration and percentage mortality graph and compared with *Meyer's* or *Clarkson's* toxicity scale (if LC₅₀ < 1,000 µg/ml is considered toxic if LC₅₀ > 1,000µg/ml is considered as non-toxic). The resulting LC₅₀ was = 0.0083 g/ml for the aqueous extract. The results confirmed that the plant extract is nontoxic, and the minimum toxic concentration of *T. arjuna* in the brine shrimp assay was 0.0083 g/ml.

Keywords: Brine shrimp assay, *Terminalia arjuna*, Toxicity