

Bioassay Guided Isolation and Identification of a Cytotoxic Compound from *Azadirachta indica* Leaves

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ABSTRACT

This study aimed to investigate the structural features of the isolated flavonol glycoside, which might behave as a cytotoxic compound. The hexane, chloroform, ethyl acetate, and aqueous fractions of an 80% methanol solution of Neem (*Azadirachta indica*) (Family: Meliaceae) leaves were subjected to a cytotoxicity bioassay against brine shrimp, *Artemia salina*. The ethyl acetate fraction exhibited the highest cytotoxic effect, supported by the lowest lethal concentration, a LC₅₀ value of 1.35±0.40 ppm. A compound, Quercetin 3-O-β-D-glucopyranoside, was isolated from the most toxic fraction of the ethyl acetate via preparative liquid chromatography and then identified via ultraviolet-visible (UV-Vis), infrared (IR), mass spectrum (MS) and nuclear magnetic resonance (NMR) analyses. The compound was further confirmed by physical state, color, solubility, and melting point determination. The cytotoxic results suggest that the leaf ethyl acetate fraction consists of toxic compounds, which point towards the isolation of Quercetin 3-O-β-D-glucopyranoside.

KEYWORDS: *Azadirachta indica*; Cytotoxicity; Ethyl acetate fraction; Quercetin 3-O-β-D-glucopyranoside.

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