ISOLATION AND IDENTIFICATION OF COMPOUNDS FROM THE ACTIVE FRACTION OF *SOLANUM DIPHYLLUM* WITH ANTI-ANGIOGENIC PROPERTIES AGAINST BRAIN CANCER

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ABSTRACT

ISOLATION AND IDENTIFICATION OF COMPOUNDS FROM THE ACTIVE FRACTION OF *SOLANUM DIPHYLLUM* WITH ANTI-ANGIOGENIC PROPERTIES AGAINST BRAIN CANCER

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Abstract

Solanum diphyllum L. has been investigated for its potential anti-angiogenic activity against brain cancer. This study aimed to isolate and characterize the bioactive constituents from the plant's active fractions. Sequential extraction, fractionation, and purification using MPLC, Sephadex column chromatography, and TLC led to the isolation of three compounds (**1**-**3**). Structural elucidation was accomplished through comprehensive spectroscopic analyses, including 1D and 2D NMR (^{1}H, ^{13}C, COSY, HMQC, and HMBC) and HR-ESIMS. The identified compounds were a lignan glucoside (**1**), a spirostane-type steroidal saponin with diosgenin as the aglycone and sugar moieties including rhamnose and glucose (**2**), and a simple amino-ketone, diacetonamine (**3**).

Additionally, the study was based on bioassay-guided isolation of fraction SDGB6 that exhibited the best cytotoxic activity against glioma cells in the MTT assay, supporting the potential of *S. diphyllum* fruit as brain anticancer agents. These findings expand the phytochemical knowledge of *S. diphyllum* and provide a scientific foundation for further investigations, including bioactivity evaluation of isolates and sugar assignment of the diosgenin glycoside and studies on the mechanisms of the anticancer activity of the extract.