

**ENZYME-ASSISTED EXTRACTION OF SAPONIN FROM TORCH GINGER
(*ETLINGERA ELATIOR*) STEM AS AN ACTIVE INGREDIENT IN BODY
WASH**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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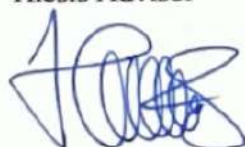


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ABSTRACT

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Torch ginger (*Etlingera elatior*) stems are a potential source of saponin for cosmetic applications. However, traditional extraction methods such as maceration are often inefficient. This study explored enzyme-assisted extraction (EAE) as an alternative to improve the saponin yield from this plant, which has been traditionally used for cleansing purposes. This research aimed to optimized EAE parameters (enzyme concentration and time) and compare its saponin yield and productivity against the maceration method. The method used involved enzymatic treatment of torch ginger stem powder with a cellulase enzyme, followed by maceration in 70% ethanol. The total saponin content was measured using UV-Vis spectrophotometry, and the saponin type was identified through qualitative test. Results showed the optimal EAE condition was 0.7% enzyme concentration for 27.19 hours. EAE yielded the highest total saponin content (6.82 mg/g) and productivity (0.074 mg/g.h), this method outperformed maceration alone, which produced only (0.038 mg/g.h) in terms of productivity. Qualitative analysis confirmed the extract contains triterpenoid saponins. In conclusion, EAE is a significantly more effective and efficient method for extracting saponins from torch ginger stems compared to conventional maceration.

Keywords: Etlingera elatior, Enzyme Assisted Extraction (EAE), Saponin, Cellulase, Triterpenoid.



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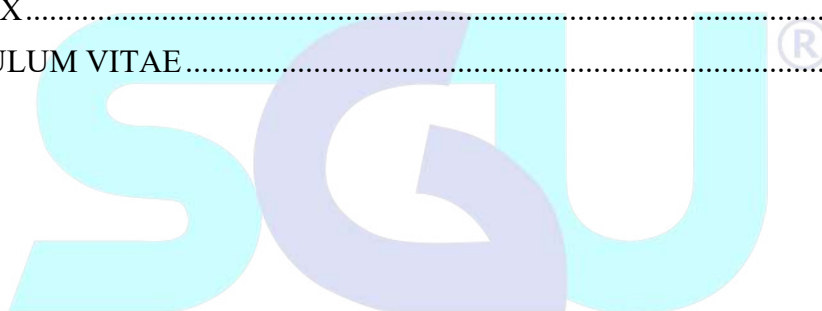
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