

The Analysis of Antihypertensive and Toxicity Potential of Cantaloupe (*Cucumis melo* var. *cantalupensis*) Methanol Extract

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**The Analysis of Antihypertensive and Toxicity Potential of Cantaloupe
(Cucumis melo var. cantalupensis) Methanol Extract**

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Abstract

Cantaloupe is often used in hypertension therapy. But it is not yet known the mechanism of action of cantaloupe in lowering blood pressure also has no known potential toxicity if consumed in the long term. This study analysed the antihypertensive mechanism of cantaloupe and its toxic potential through the bioinformatics approach. A total of 200 grams of dried cantaloupe powder was maserated using 3 liters of absolute methanol and stored at 4oC. The phytochemical test was done by the LC-MS method, the bioactive compounds from LC-MS were traced to their SMILES in the PubChem. SMILES was used for the analysis of the antihypertensive potential in the PASSonline and the toxicity class and hepatotoxicity in the ProTox-II. The mechanism of compounds toxicity was analysed using STITCH and STRINGdb. The binding affinity between the bioactive compound and the target protein was analysed by molecular docking using PyRx and Discovery Studio. The results showed that at least 434 types of compounds were shown in cantaloupe methanol extract. Based of the STITCH and STRINGdb analysis, the cantaloupe may reduce blood pressure through the performance of amlodipine in the calcium channel pathway that controls contraction and relaxation. Among the compounds in cantaloupe extract, there were 4 compounds with the highest toxicity class, namely nitrofurazone, diphenadione, neosaxitoxin, and furazolidone. Nitrofurazone and furazolidone work on the hormone production system, nervous system, and gene expression. Some compounds were also thought to have hepatotoxic potential, including efavirenz and itraconazole which act on the cytochrome P450 pathway.

Keywords: Antihypertensive, Toxicity Potential, Cantaloupe (Cucumis melo var. cantalupensis), Methanol Extract

Topic: Chemistry

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