

Thesis Title	Isolation, Structure Elucidation, Assay and Cytotoxic Property of Tropolone Alkaloids from Tubers of <i>Gloriosa superba</i> Linn.
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ABSTRACT

Gloriosa superba Linn., a Thai medicinal plant, has been used traditionally as remedies for arthritis, syphilis, leprosy, skin diseases and some cancer types. Three tropolone alkaloids, compound A, compound C1 and compound C2 were isolated from *G.superba* Linn. tubers by percolation with methanol and subsequently by the column chromatographic method with aluminium oxide. The structure determination, and ^1H - and ^{13}C -NMR assignments of compound A were identified as β -lumicolchicine. It was the UV irradiation product of colchicine occurred in either nature or isolation method. Compound C1 and compound C2 were identified as 3-demethylcolchicine and 3-demethyl-N-formyl-N-deacetylcolchicine, respectively. For analysis of tropolone alkaloid contents in *G.superba* Linn.tubers, all tubers contained colchicine as the major (0.0198 - 0.0584 %), β -lumicolchicine (0.0078 - 0.0328 %) and mixture of 3-demethylcolchicine and 3-demethyl-N-formyl-N-deacetylcolchicine (0.0062 - 0.0200 %) as minor constituents. These tubers were classified into three shapes : L, V and

T-shaped. Most of them were L-shaped while each shape contained no different content in tropolone alkaloids. The L-shape tubers were grouped into three types. Smooth, thick and flat (type B) tubers contained more tropolone alkaloids than the smooth, thin and round (type A) tubers and the rough, thick and flat (type C) tubers. The methanolic extract showed cytotoxic activity against KB (human epidermoid carcinoma of nasopharynx), Lu1 (human lung cancer), LNCaP (human prostate cancer) and ZR-75-1 (human breast cancer) cell lines. For P388 (mouse lymphocytic leukemia) cell line, β -lumicolchicine demonstrated non-cytotoxicity whereas methanolic, chloroform, and petroleum ether extract, partially purified 3-demethyl-N-formyl-N-deacetylcolchicine and colchicine produced potent cytotoxic activities with ED₅₀ of 0.49, 0.02, 2.07, 0.0252, 0.0071 μ g/ml, respectively. Consequently, these tropolone alkaloids appear to be promising clinical candidates for further investigation as the present time.