

A113 Cytotoxic activity of methanolic extracts of three Nigerian *Crinum* species

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Crinum species (Amaryllidaceae) are bulbous plants found in riverine areas of West Africa as well as other parts of the world. In Nigeria the aqueous extracts are used by traditional medical practitioners for cough, asthma, convulsion, inflammation and also as an antispasmodic. In many countries *Crinum* species have shown to possess cytotoxic activity, such as anticancer or antiparasitic, due to the presence of crinin-type alkaloids (1-3). Hence, this study pursues to investigate the cytotoxic and the antioxidant activities of three *Crinum* species indigenous from Nigeria which have not been previously investigated. Methanolic extracts were prepared from the bulbs of *Crinum zeylanicum*; *C. glaucum* and *C. jagus* and tested against the human cancer cell line CORL23, non-small lung cancer cell, using the SRB assay for cell growth (4). The IC₅₀ values obtained demonstrate that the *Crinum* species studied have high cytotoxic activity IC₅₀ = 5.59 µg/ml for *C. zeylanicum*; IC₅₀ = 12.85 µg/ml for *C. glaucum* and IC₅₀ = 5.76 µg/ml for *C. jagus*. *C. jagus* showed the highest inhibitory activity of the human cancer cell line tested, suggesting that the species analysed contain good candidates to explore for lead compounds with cytotoxic activity.

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A114 Antineoplastic glyfoline induces apoptosis of nasopharyngeal carcinoma cells

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Glyfoline, a 9-acridone alkaloid isolated from *Glycosmis citrifolia* (Rutaceae) indigenous to Taiwan, was previously synthesized and found to have potent antitumor effect both *in vitro* and *in vivo* (1,2). The alkaloid exhibits potent antitumor effect against the cell growth of nasopharyngeal carcinoma (NPC) with IC₅₀ value of 4.4 µM. To elucidate the mechanism of action of the natural product we treated NPC cells with glyfoline for 2 days, the cells showed a gradual increase of apoptotic change with vascular and granular degeneration. In addition, DNA fragmentation with ladder pattern, positive TUNEL analysis, and gradual increase in sub-G1 phase of DNA population and G2/M arrest were also observed. However, the reverse-transcriptase-polymerase chain reaction showed no change of apoptotic gene expression, such as Bcl-2, Bax, ICE-α, β and c-myc genes. We, therefore, synthesized the biotinylated glyfoline for immunoelectron microscopic localization (3). It reveals that the main target of glyfoline or its biotinylated derivative is the mitochondria. The glyfoline treated NPC cells showed a release of cytochrome C from mitochondria, while no specific change was seen in human fibroblasts and peripheral lymphocytes. The present experiment concluded that glyfoline can induce apoptosis in NPC cells *in vitro*, probably due to an induction of cytochrome C leakage from mitochondria into the cytosol, and that is more specific to cancer cells than normal cells.

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