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# Cytotoxic activity of the methanolic extract of leaves and rhizomes of Curcuma amada Roxb against breast cancer cell lines.

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### Abstract

**OBJECTIVES:**

To evaluate the methanol extract of both the leaves and the rhizomes of Curcuma amada (C. amada) for their cytotoxic activity against breast cancer cell lines MCF-7 and MDA MB 231.

**METHODS:**

Viability and cytotoxicity induced by the extracts were assessed using 3-(4,5-dimethyl-2-thiazolyl)-2,5-diphenyl-2-H-tetrazolium bromide, sulforhodamine B, and lactate dehydrogenase release assays. Various staining techniques such as acridine orange/ethidium bromide, Giemsa, ethidium bromide, propidium iodide, and Hoechst 33342 staining were employed to study the mechanism of cell death induced by the extract.

**RESULTS:**

The results indicated that the methanol extract of both the leaves and the rhizomes of C. amada exhibited strong cytotoxicity towards breast cancer cell lines MCF-7 and MDA MB 231. The extract also showed less cytotoxicity towards non-cancerous breast cell line HBL-100. The results of staining revealed that the extracts induced cell death in cancer cells which are mediated through apoptotic pathway.

**CONCLUSIONS:**

The results indicated that the methanol extract of leaves and rhizomes of C. amada possess anticancer and cytotoxic activity.


**KEYWORDS:**

Apoptosis; Cancer; Cell lines; Curcuma amada; Cytotoxicity; Viability