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Phytoconstituents from *Vernonia glaberrima* Welw. Ex O. Hoffm. leaves and their cytotoxic activities on a panel of human cancer cell lines (Article)

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Abstract

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Vernonia glaberrima is a medicinal plant that is used in African traditional medicine for the treatment of skin cancer. The aim of this study was to investigate the anticancer activity of *V. glaberrima* leaves and isolate its bioactive constituents. Crude methanolic leaves extract of *V. glaberrima* showing significant cytotoxic activity against cancer cell lines was subjected to chromatographic separation, purification and hydrolysis to yield four compounds namely, nonacosanoic acid, lupeol, 5-methylcoumarin-4- β -glucoside and 4-hydroxy-5-methylcoumarin. Three of the isolated compounds showed significant cytotoxic activity against human malignant melanoma (A375) cell line (IC₅₀: 59.18 \pm 2.70 to 139.53 \pm 10.79 μ g/mL) and human caucasian colon adenocarcinoma (HT-29) cell line (IC₅₀: 4.22 \pm 0.13 to 20.0 \pm 1.91 μ g/mL) while only lupeol displayed significant activity against human breast adenocarcinoma (MCF7) (IC₅₀: 34.15 \pm 2.32 μ g/mL) cell line. CDK2 receptor and CAIX were identified through molecular docking as potential targets for the bioactive compounds. The findings of this study have revealed the therapeutic potential of *V. glaberrima* against breast cancer, skin cancer and colorectal carcinoma, respectively and further support its traditional uses in the treatment of skin cancer. © 2018 South African Association of Botanists

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[5-Methylcoumarin-4- \$\beta\$ -glucoside](#) [Anticancer activity](#) [Carbonic anhydrase IX](#) [Molecular docking](#) [Vernonia glaberrima](#)

Indexed keywords

GEOBASE Subject Index:

[angiosperm](#) [cancer](#) [cell](#) [leaf](#) [medicinal plant](#) [molecular analysis](#) [phytochemistry](#)
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Species Index:

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