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EFFECT OF THE AQUEOUS STEM EXTRACT OF *Costus spicatus* ON THE MODULATION OF BREAST CANCER MODELS

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Natural products have gained prominence due to bioactive compounds with antitumor potential. *Costus spicatus*, a plant known for its traditional medicinal uses (Lorençone et al., 2021), has shown potential anticancer properties. Despite this promising bioactivity, its effects on breast cancer cells remain poorly explored. Therefore, this study aimed to evaluate the effect of the aqueous stem extract of *C. spicatus* (AQCa) on the modulation of the antitumor response *in vitro* and *in vivo* in a mammary adenocarcinoma model (SisGen - A126B1D). Initially, cell viability was assessed using the MTT assay after 48 h in macrophage cell lines RAW 264.7 and J774A.1, and in tumor cell lines MCF-7, MDA-MB-231, and 4T1, at concentrations of 333, 100, 33.3, and 10 µg/mL. In the *in vivo* model, 50 µL of a cell suspension containing 4T1 cells was inoculated into the mammary gland of female BALB/c mice (CEUA/Mucuri – 02-2023). From the 10th day after inoculation, mice were treated daily by gavage with AQCa (75, 150, or 300 mg/kg) for 18 days, either alone or in combination with doxorubicin (5 mg/kg). *In vitro*, the results showed that AQCa reduced tumor cell viability at higher concentrations, particularly in the triple-negative MDA-MB-231 cell line, which exhibited only 51.8% of viable cells. *In vivo*, the AQCa 300 mg/kg group displayed inhibition of tumor growth, with a significant reduction in tumor volume (271.925 mm³) compared to the untreated group (521.333 mm³), and even lower than that observed for doxorubicin (329.7 mm³). These findings indicate that AQCa contains bioactive compounds capable of significantly inhibiting tumor growth, with low toxicity to normal cells, highlighting its potential as an adjuvant agent in breast cancer treatment. Further studies are required to elucidate its molecular mechanisms of action and assess its clinical applicability.

Keywords: *Costus spicatus, antitumor effect, breast cancer, murine model.*

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