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CYTOTOXIC POTENTIAL OF INDOLE ALKALOIDS FROM Tabernaemontana catharinensis AGAINST COLORECTAL CARCINOMA CELLS

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Phytotherapy is estimated by the World Health Organization (WHO) to be used by almost 80% of the global population, mainly through plants rich in secondary metabolites with therapeutic potential. The genus Tabernaemontana (Apocynaceae) is notable for its indole alkaloids, associated with antimicrobial, anti-inflammatory, and antitumor activities. *Tabernaemontana catharinensis*, known as "jasmin-catavento", is traditionally used in folk medicine, but systematic studies of its alkaloid profile and selective cytotoxicity remain scarce. This study investigated the extraction, chemical characterization, and cytotoxic activity of indole alkaloids from *T. catharinensis* leaves. Extraction was performed by ultrasound-assisted maceration in ethanol, followed by acid–base partitioning to obtain an alkaloid-rich fraction (AF). Chemical analysis by high-resolution mass spectrometry (HRMS) identified seven indole alkaloids, including ibogamine, affinisine, 16-epi-affinine, vobasine, voacangine, and coronaridine derivatives. Toxicity was assessed using the *Artemia salina* bioassay, while cytotoxicity was evaluated in vitro against HCT116 colorectal carcinoma cells and non-tumor MRC5 fibroblasts by MTT assays after 24 and 72 h. The extraction yielded 0.94% (m/m) of AF, consistent with literature values. The *A. salina* assay indicated moderate toxicity, with LD_{50} 367.33 ± 2.45 µg mL^{-1}. In cell assays, AF significantly inhibited HCT116 viability, with IC_{50} 28.49 ± 2.66 µg mL^{-1} (24 h) and 20.86 ± 0.16 µg mL^{-1} (72 h). MRC5 fibroblasts showed higher resistance (IC_{50} 60.35 ± 3.25 µg mL^{-1}), demonstrating tumor selectivity. These findings highlight *T. catharinensis* as a promising source of indole alkaloids with selective cytotoxic effects against colorectal carcinoma cells. The alkaloid-enriched fraction demonstrated relevant antitumor activity, supporting its potential for drug discovery. Further mechanistic studies and *in vivo* models are needed to validate their pharmacological applications and therapeutic safety.

Keywords: *Tabernaemontana catharinensis, indole alkaloids, colorectal cancer.*