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BIOGUIDED STUDY AND EVALUATION OF THE ANTITUMORAL POTENTIAL OF *Casearia sylvestris*

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Abstract: Cancer is a leading cause of death worldwide, and, according to the World Health Organization there every year, nine million new cases and about five million people dying from this illness [1]. In this sense, many medications routinely used in chemotherapy are derived from natural products (NPs) and, since Brazil has a wide diversity of plants, its importance to the discovery of new natural compounds acting against cancer is outstanding [2]. By making a bioguided strategy in the search of new antitumor NPs this study aimed to evaluate the antitumor potential of *C. sylvestris*, found in the remaining region of Atlantic Forest in Minas Gerais. The leaves of *C. sylvestris*, were treated according to classical phytochemistry methods providing the crude extract that was submitted to liquid-liquid partition. Along with the crude extract, the three partitions (hexane, ethyl acetate and ethanol were tested in 5 cell lineages derived from human cancers (MCF7, breast carcinoma, A549, lung carcinoma, HepG2, hepatocellular carcinoma; HT144, melanoma, and U251, glioblastoma). The cytotoxic potential was evaluated by colorimetric assay (MTS), which is based on metabolic conversion of the tetrazolium salt to formazan [3]. The crude extract of *C. sylvestris* presented significant cytotoxic activity against all strains. Additionally, the results of the strains A549 and HepG2 could be highlighted as the most responsive to the experiment (only 20% viability in cultures treated for 48 hours with *C. sylvestris* extract and the hexane fraction). Thus, the hexane fraction was subjected to bioguided fractionation and two casearins were isolated (Casearins G and A). The structural identification of these compounds was performed by NMR analysis and compared to those reported in the literature. Subsequent tests showed that casearins are partly responsible for the cytotoxic activity previously observed. The IC_{50} obtained for the G and A casearins were: 17.85 µg/mL and 13.50, µg/mL, respectively, for the A549 line. Promising results even more were obtained for the HepG2 strain (IC_{50} = 11.36 µg/mL, casearin G; IC_{50} = 8.84 µg/mL, casearin A). Nonetheless, *C. sylvestris* extracts is a major source for the identification and isolation of novel compounds that could have similar activity, according to our preliminary bioscreening, as was reported to the casearins G and A are related to the cytotoxic potential of *C. sylvestris* on tumor cells.

References:

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