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PROSPECTION OF PROTEASE INHIBITORS FROM VALE DO MUCURI PLANTS WITH IN VITRO ANTITUMOR ACTIVITY IN BREAST CANCER

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Breast cancer is one of the leading causes of mortality among women in Brazil, reinforcing the need for new, more effective and selective therapeutic approaches. Plant compounds stand out as promising sources of bioactive molecules, including protease inhibitors, capable of modulating tumor processes related to invasion and metastasis. This study evaluated the cytotoxic potential of hydroethanolic extracts of Espinheira Santa (Maytenus ilicifolia) and Aveloz (Euphorbia tirucalli) in breast cancer cell lines. The plants were used as representative material in the study, with analysis focused on their main metabolites. Cytotoxicity was evaluated using MTT assays in cells (MCF-7, MDA-MB-231, and 4T1). The results indicated that the M. ilicifolia extract did not promote a reduction in MCF-7 (~18%) and 4T1 (~12%), with no relevant impact on MDA-MB-231. The E. tirucalli extract showed a cytotoxic effect on MDA-MB-231 (~14%) and 4T1 (~14%), although it was not consistently detrimental to MCF-7 predictions. The statistical tests used were Welch's t-test and Mann–Whitney U-test.
The findings suggest that M. ilicifolia may be associated with hormone receptor-dependent mechanisms (as in MCF-7), while E. tirucalli did not demonstrate efficacy against the more detrimental strains (MDA-MB-231 and 4T1). These preliminary findings reinforce the importance of new results from studies involving fractionation and identification of active compounds, for validation. the therapeutic potential of these species.

Keywords: breast cancer; Maytenus ilicifolia; Euphorbia tirucalli; protease inhibitors; antitumor.