VIRTUAL SCREENING OF RENISUS MEDICINAL PLANTS WITH GASTRIC ANTITUMORAL POTENTIAL

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Gastric cancer is both the fifth most common type of cancer and the fifth cancer with the highest mortality rate in the world, with *Helicobacter pylori* infection being its main risk factor. When the cancer is discovered in more advanced stages, its prognosis often has a negative outcome, which highlights the demand for new treatment options. The use of medicinal plants and their phytochemicals represent important allies in the search for new compounds with potential for pharmacological use. Thus, the objective of this work was to select medicinal plant species from the RENISUS list with gastric antitumor potential through in silico studies and, subsequently, in vitro studies. Through virtual screening, medicinal plants were selected through a systematic review of the literature, searching for species with known gastroprotective and anti-*H. pylori* activity, but without studies for gastric cancer. Then, a database of its secondary metabolites was created and its biological activity was evaluated through a prediction model using the PASSOnline program. The plant with the most compounds with antitumor potential was selected and evaluated in silico, through molecular docking, and in vitro, through a cytotoxicity assay. Based on the literature survey and PASS analysis, the selected medicinal plant was *Casearia sylvestris* L. (Salicaceae), popularly known as guaçatonga. Its molecular docking analysis was performed using the transcription factor HIF-2α as the target, where several compounds from *C. sylvestris* demonstrated potential interactions with the active site. The best docking scores were observed for the metabolites 15ξ-Methoxy-cleroda-3,12-dien-18-carboxy-15,16-olide, α-zingiberene, and catechin, however, sesquiterpenes overall showed the most promising performance. In its cytotoxicity assay on AGS cells, its IC50 was 138.20 ± 8.10 µg/mL. The results of the trials carried out with *C. sylvestris* were promising, but further studies are still needed, evaluating fractions of its extract, especially the apolar fractions, and isolated compounds, to confirm the gastric antitumor activity predicted here.

Keywords: *Gastric cancer; Casearia sylvestris; medicinal plants; RENISUS; virtual screening.*

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