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PHENOLIC PROFILE AND IN VITRO ACETYLCHOLINESTERASE AND α-GLUCOSIDASE INHIBITION OF *Myrcia tijucensis* EXTRACTS

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder whose global prevalence is expected to almost triple by 2050, and current therapies are limited by high failure rates and adverse effects. Type 2 diabetes mellitus, accounting for about 90% of diabetes cases worldwide, also poses a major public health problem. Synthetic drugs used for these conditions often cause side effects, and plant-derived compounds are considered for their therapeutic potential. The genus *Myrcia* is traditionally used in diabetes management. This study aims to evaluate, for the first time, *Myrcia tijucensis* Kiaersk. extracts for acetylcholinesterase and α-glucosidase inhibition and their chemical profile by HPLC-ESI-MS/MS. Aerial parts of *M. tijucensis* were collected in Blumenau (SC, Brazil) in August 2018. A voucher specimen was deposited at FURB Herbarium (no. 02089), and the project is registered in SISGEN under number A7519AA. Leaves and stems were dried, milled and macerated for seven days with dichloromethane, ethyl acetate or 70% ethanol to obtain crude extracts. Infusions were prepared by adding leaves or stems in 400 mL of boiling water for 15 min and lyophilized. Secondary metabolite classes were screened by colorimetric assays. Phenolic compounds were quantified by HPLC-ESI-MS/MS using 47 standards. Acetylcholinesterase and α-glucosidase inhibitory activities were evaluated *in vitro* following Ellman's and pNPG-based methods, respectively. Hydroalcoholic, ethyl acetate and dichloromethane extracts from leaves and stems of *M. tijucensis*, as well as their infusions, were obtained with variable yields. Hydroalcoholic extracts showed the highest recovery. Preliminary phytochemical screening revealed phenols, tannins, anthocyanins, flavonoids, catechins, steroids, triterpenoids and saponins, especially in leaf infusions and stem hydroalcoholic extracts. HPLC-ESI-MS/MS identified 17 phenolic compounds, including quercetin, ellagic acid, syringaldehyde and several phenolics reported for the first time in the genus. Enzymatic assays demonstrated potent α-glucosidase inhibition, with dichloromethane stem extract exhibiting the lowest IC_{50} (0.05 mg/mL), and strong acetylcholinesterase inhibition in ethyl acetate leaf extract, dichloromethane stem extract and stem infusion (< 0.007 mg/mL), suggesting relevant antidiabetic and neuroprotective potential. This study demonstrates that *M. tijucensis* contains diverse phenolic compounds and shows significant in vitro inhibition of acetylcholinesterase and α-glucosidase, supporting its potential as a source of bioactive molecules for therapeutic development.

Keywords: *Myrcia tijucensis, phenolic compounds, acetylcholinesterase inhibition, α-Glucosidase inhibition.*