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Antitumor activity of *Miconia chamissois* Naudin fractions in human glioma lines: *In vitro* and *in vivo*

Ana G Silva¹, Fernanda E Pinto², Wanderson Romão², Alisson R Rezende³, Fernanda P Cury⁴, Viviane A O Silva⁴, Renato J S Oliveira⁴, Rui M V Reis⁴ and Rosy I M A Ribeiro⁴

¹UFSJ-CCO, Brazil

²UFES, Brazil

³UEMG, Brazil

⁴HCB-CPOM, Brazil

Introduction: Gliomas represent nearly 70% of the central nervous system tumors. Despite the progress of chemotherapy and radiotherapy, the median survival is around 12-17 months. Studies have shown that the use of new natural antineoplastic agents has been highly effective and offers a wide field of research. The aim of this study is to investigate the antitumor potential of *M chamissois* Naudin chloroform partition and fractions on glioma cell lines.

Results & Discussion: The chloroform partition and fractions exhibited dose-dependent cytotoxic effects in the majority of the glioma cell lines. Amongst the fractions tested, McC1 and McC3 displayed the best activity, with an IC₅₀ mean ranging from 0.25 to 30 µg/mL and index selectivity. These fractions also showed a significant reduction in cell migration (35% for McC1 and 24% for McC3), and invasion (24% for McC1 and 22% for McC3). Furthermore, the clonogenicity was reduced 40% for GAMG and 50% for U251MG with McC1. Both fractions had a synergistic effect when combined with the chemotherapeutic temozolomide. The fractions promoted a significant increase of pH2AX, cleaved PARP and cleaved caspases (3, 7 and 9) levels ($p < 0.05$), suggesting DNA damage and cell death by apoptosis. *In vivo* chicken chorioallantoic membrane assay, the McC1 fraction inhibited angiogenesis and tumor perimeter. The two best fractions McC1 and McC3 were characterized by electrospray ionization mass spectrometry, both containing six molecules.

Conclusion: These findings contribute to new treatments for human glioblastoma, in addition to the combination with conventional therapy potentiate its therapeutic effect.

Biography

Ana G Silva is a PhD student in the Biotechnology program of the Federal University of São João del-Rei. She has completed her Master's degree in Biotechnology Applied to Health (2017) and Bachelor's degree in Nursing (2014) from the Federal University of São João del-Rei, Campus Centro Oeste Dona Lindu, Divinópolis/MG. She participates in the research group Biological Activity of natural products. It currently focuses on screening new compounds from natural products *in vitro* and *in vivo* in human glioblastoma tumor cell lines.

silvaa.gabriela@yahoo.com.br

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