XI Simpósio Brasileiro de Farmacognosia
XVI Simposio Latinoaméricano de Farmacobotanica
Curitiba, Brasil - 9-11 de agosto de 2017

Leaf extract of *Caryocar brasiliense* is apoptogenic for tumor cells

Almeriane M. Weffort-Santos,[1] Cristiane L. Reichert,[1] Keylla L. Mischiatti,[1] Kiane F. Silva, Regiane S. da Cunha,[2] Noely T. Silva,[3] Lucélia Donatti,[4] Karina B. Felipe,[1] Waldemar de Paula-Jr.[5]

[1]Departamento de Análises Clínicas, Universidade Federal do Paraná, Curitiba/PR, Brazil
[2]Programa de Pós-gradução em Microbiologia, Parasitologia e Patologia, Universidade Federal do Paraná, Curitiba/PR, Brasil
[2]Hospital de Clínicas, Universidade Federal do Paraná, Curitiba/PR, Brazil
[3]Departamento de Biologia Celular, Universidade Federal do Paraná, Curitiba/PR, Brazil
[4]Departamento de Fisiopatologia, Universidade Estadual de Montes Claros, Montes Claros/MG, Brazil

Introduction: *Caryocar brasiliense* A.St.-Hil., Caryocaraceae, is a Brazilian tree distributed in the Cerrado bioma. Amongst sixteen species included into the genus, *C. brasiliense* is one of the most valuable sources of Cerrado communities' subsistence as the plant itself and all of its individual parts have a wide range of culinary, commercial, and medicinal applications. Rare studies about the medicinal potential of its leaves are available. Aims: Considering the large and diverse applications of *C. brasiliense,* its significant economical relevance, and the lack of knowledge, this study was designed to investigate the effects of the total leaf extract (TE) of *C. brasiliense* and its butanol (BUT), ethyl acetate (EA), and water (W) fractions against different tumor cell lines. Material & Methods: TE and fractions were prepared, fractionated, and analyzed by HPLC-DAD. Several tumor cell lines were used to test their toxicity (MTT assay) and to establish the IC_{50}. DNA extraction and ladder electrophoresis as well as Annexin V/7'-AAD expression by flow cytometry were performed for U-937 cells. Results & Discussion: The HPLC chromatograms of the TE and its fractions along with gallic and ellagic acids as reference compounds are showed in Fig. 1. Both the TE and fractions were significantly toxic for U-937, HeLa, and HRT-18 cancer cell lines, in contrast with McCoy cells, which is not a tumor cell line (Table 1). Electrophoresis of the DNA extracted from U-937 cells treated with the TE and all fractions showed a ladder fragmentation profile (Fig. 2-A). Also, these cells showed high expression of Annexin V by flow cytometry (Fig. 2-B). Conclusion: The data herein presented indicate that *C. brasiliense* leaves are toxic for several tumor cells and suggest the mechanism of cell death is apoptosis-mediated.

Palavras-chave: *Caryocar brasiliense*, tumor cells, apoptosis.

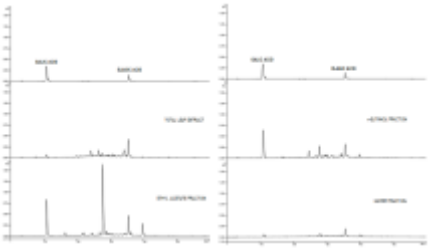

Fig. 1. HPLC chromatograms of *C. brasiliense* leaf extract and its ethyl acetate, *n*-butanol, and aqueous fractions along with gallic and ellagic acids as reference compounds.

Table 1. IC_{50} of *C. brasiliense* leaf total extract and its ethyl acetate, *n*-butanol, and aqueous fractions established several cell lines.

FRACTION / CELL LINE	U-937	HeLa	HRT-18	McCoy
Total Extract	240.5	128.2	135.2	333.1
Ethyl Acetate	88.1	67.2	65.0	890.4
n-Butanol	178.5	26.3	37.0	313.4
Water	120.3	158.4	151.3	>1000

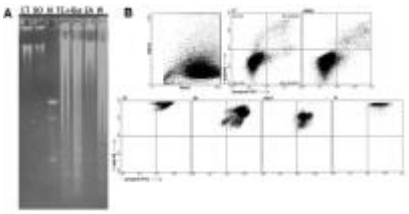

Fig. 2. (**A**) DNA ladder assay and (**B**) Annexin V expression of U-937 cells treated with 100 ug/ml of *C. brasiliense* leaf extract and its ethyl acetate, *n*-butanol, and aqueous fractions.