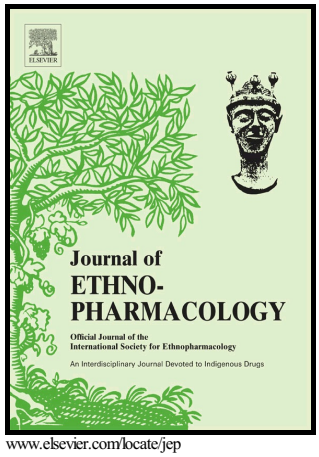

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Metabolic profiling and correlation analysis for the determination of killer compounds of proliferating and clonogenic HRT-18 colon cancer cells from *Lafoensia pacari*

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Abstract

Ethnopharmacological relevance

Lafoensia pacari A. St.-Hil., belonging to the family Lythraceae and popularly known as 'dedaleira' and 'mangava-brava,' is a native tree of the Brazilian *Cerrado*, and its barks have been traditionally used as a tonic to treat inflammatory conditions, particularly related to gastric ulcers, wounds or fevers and various types of cancer.

Aim of the study

We have previously demonstrated the apoptogenic effects of the methanolic extract of *L. pacari* using various cancer cell lines. In the present study, this extract has been partitioned into fractions to identify the components that might be responsible for the apoptogenic effects using HRT-18 cells, which have been previously demonstrated to be sensitive to this extract.

Materials and methods

A standard methanolic extract was prepared and fractionated by centrifugal partition chromatography. The fractions were submitted to cytotoxicity and clonogenic assays to monitor the effects in parallel with LC-DAD-MS and statistical analyses to suggest the potential bioactive compounds.

Results

Besides ellagic acid, the primary constituent of the plant and also the biomarker of the species, one punicalin isomer, three pedunculagin I isomers, ~~two castalagin isomers~~, three punicalagin HHDP-gallagyl-hexoside isomers, one ellagic acid deoxyhexose conjugate and one methyl ellagic acid deoxyhexose conjugate were putatively identified.

Conclusions

The barks of *L. pacari* are rich in ellagic acid and various hydrolysable tannins, some of which were reported for the first time in this species, such as punicalagin and ellagitannins. This mixture of substances had the ability to kill proliferating cells and abrogate the growth of clonogenic cells in a similar manner shown by the methanolic extract of our previous study. The collective data reported herein suggest that the biological activities of the *L. pacari* barks used by the Cerrado's population to treat cancer conditions are due to the apoptogenic effects promoted by a mixed content of ellagitannins.