METABOLIC PROFILING OF *Ternstroemia pringlei* COLLECTED IN MÉXICO AND ITS ANTIOXIDATIVE CAPACITY IN DIFFERENT PLANT ORGANS

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Key words: Antioxidant, ternstrosides,Ternstroemia

Introduction. Calyx and fruits from *Ternstroemia pringlei* ("Flor de tila") are popularly employed in México for the treatment of central nervous system disorders. In a previous report we identified the presence of jacaranone in this species, and demonstrated its sedative activity (1). *T. pringlei* represents one of the most commercially exploited medicinal plants in the country, and the identification of antioxidant compounds, like phenylethanoid glycosides, is a demand and are contributes to the chemotaxonomic characterization of the genus. The aim of this work is to obtain a metabolic profiling of different organs of *T. pringlei* collected in four different locations of México, and to identify phenylethanoids glycosides in the samples as well as to correlate these compounds with the antioxidant activities.

Methods. Plants were collected in four localities in México (Morelos, Querétaro, Michoacán and Oaxaca). Methanol extracts of the leaves, calyx with flower, calyx with fruit, calyx and seed were prepared separately. HPLC and open column chromatography was used for the isolation of compound TR2 from leaves extracts collected in Morelos, Hiutzilac. Its structure was characterized by NMR and mass analysis. For a first metabolomic study, extracts were obtained from calyx following the methodology described by Cardoso-Taketa et al., 2008 (2). ABTS was used for the determination of antioxidant activity. Other *in vitro* methods like DPPH and FRAC, and the *in vivo* model using yeast and H2DCF as fluorescent indicator of the intracellular oxidation, will be employed.

Results. Leaves methanolic extracts afforded a pure compound identified as tersntroside 2 by means of NMR and mass evidences. This compound was first isolated from the leaves of *Terstroemia japonica* and showed high antioxidative activity (3). Samples from Querétaro displayed a discriminative metabolic profiling due to the presence of high levels of aromatic compounds (Fig. 1), that correlates with the antioxidative activity in ABTS test. TLC analysis indicated the presence of ternstroside 2 in all samples, with exception of Oaxaca. Different organs showed high variation in the metabolism of phenylethanoids (Fig. 2).

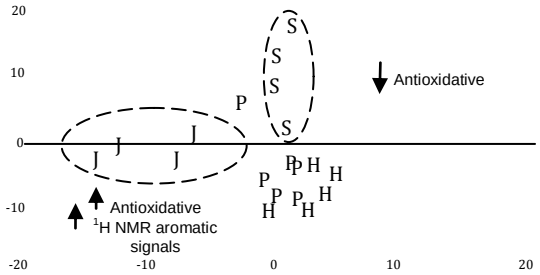

Fig.1 Score plots of PLS-DA models (PLS-DA 1 vs PLS DA3) based on ^{1}H NMR resonances and localities for *T. pringlei* collections in Mexico: **S**, Santa Catarina, Oaxaca; **P**, Pátzcuaro, Michoacán; **J**, Jalpan, Querétaro; **H**, Huitzilac, Morelos.

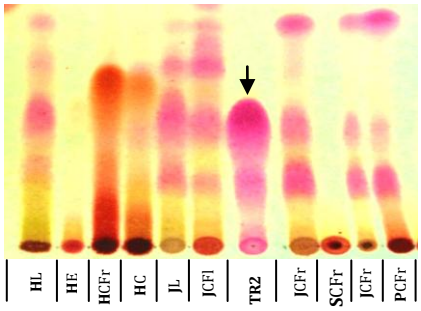

Fig.2 TLC of the organs of *T. pringlei* collected in Huitzilac (**H**), Jalpan (**J**), Santa Marta (**S**) and Pátzcuaro (**P**). the organs collected were leaves (L), calyx with fruit (Cfr), calyx with flowers (Cfl), calyx (C) and seeds (E). The mobile phase was $CHCl_3$:MeOH, 4:1 and vanilin-H_2SO_4 as revelater.

Conclusions. The ternstroside 2 was identified in *T. pringlei*. The metabolic profiling and antioxidative activities are directly affected by the presence of aromatic compounds like phenylethanoid glycosides.

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