

Accepted Manuscript

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PII: S0026-265X(17)30268-0
DOI: doi: [10.1016/j.microc.2017.07.009](https://doi.org/10.1016/j.microc.2017.07.009)
Reference: MICROC 2874

To appear in: *Microchemical Journal*

Received date: 17 March 2017
Revised date: 8 June 2017
Accepted date: 21 July 2017

Please cite this article as: Ramon Rodrigues Sá, Rafael Amorim Matos, Vagner Cardoso Silva, Jamile da Cruz Caldas, Maria Celeste da Silva Sauthier, Walter Nei Lopes dos Santos, Hemerson Iury Ferreira Magalhães, Aníbal de Freitas Santos Júnior , Determination of bioactive phenolics in herbal medicines containing *Cynara scolymus*, *Maytenus ilicifolia* Mart ex Reiss and *Ptychopetalum uncinatum* by HPLC-DAD, *Microchemical Journal* (2017), doi: [10.1016/j.microc.2017.07.009](https://doi.org/10.1016/j.microc.2017.07.009)

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Determination of Bioactive Phenolics in Herbal Medicines containing *Cynara scolymus*, *Maytenus ilicifolia Mart ex Reiss* and *Ptychopetalum uncinatum* by HPLC-DAD

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Abstract

In this study, an HPLC-DAD method was developed and validated for the quantification of bioactive phenolics in herbal medicines containing *Cynara scolymus* (Globe artichoke), *Maytenus ilicifolia Mart ex Reiss* “Espinheira santa” and *Ptychopetalum uncinatum* “Marapuama”. The samples were lyophilized and 5.0 g of solid were extracted with 30 mL of methanol acidified with 100 μL of concentrated HCl, under magnetic stirring at 40°C for 30 minutes. Separation was carried out on a C18 column with analytical solvents constituting a binary elution mixture, consisting of (A) ultrapure water (Millipore, USA), containing 1.0% acetic acid ($v v^{-1}$) and (B) methanol (HPLC grade). Spectrophotometric detection was performed at a wavelength of 260 nm for vanillic acid; 280 nm for (+) – catechin and 330 nm for chlorogenic acid. The method to determine bioactive phenolics in herbal medicines showed adequate linearity, repeatability and accuracy. The limits of detection (LOD) and quantification (LOQ) were 0.025 $\mu\text{g g}^{-1}$ and 0.031 $\mu\text{g g}^{-1}$, respectively. The concentrations (minimum–maximum in mg g^{-1}) of chlorogenic acid (in samples containing *C. scolymus*) and vanillic acid (in herbal medicines containing *P. uncinatum* “Marapuama”) ranged from 71.28 to 925.99 and 17.35 to 19.21, respectively. The catechin content was 0.69 mg g^{-1} in *Maytenus ilicifolia Mart ex Reiss* “Espinheira santa”. Therefore, the results showed that the developed method is simple, less toxic, fast and reliable for the determination of bioactive phenolics in herbal medicines.

Keywords: Bioactive phenolics, Herbal medicines, quality control, HPLC-DAD.

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