Title: A validated HPLC-UV method for the analysis of galloylquinic acid derivatives and flavonoids in *Copaifera langsdorffii* leaves

Author: Erick Vicente da Silva Motta Juliana de Carvalho da Costa Jairo Kenupp Bastos

PII: S1570-0232(17)30353-7
DOI: http://dx.doi.org/doi:10.1016/j.jchromb.2017.07.027
Reference: CHROMB 20704

To appear in: *Journal of Chromatography B*

Received date: 10-3-2017
Revised date: 3-6-2017
Accepted date: 16-7-2017

Please cite this article as: Erick Vicente da Silva Motta, Juliana de Carvalho da Costa, Jairo Kenupp Bastos, A validated HPLC-UV method for the analysis of galloylquinic acid derivatives and flavonoids in *Copaifera langsdorffii* leaves, <*![CDATA[Journal of Chromatography B]]*> (2017), http://dx.doi.org/10.1016/j.jchromb.2017.07.027

A validated HPLC-UV method for the analysis of galloylquinic acid derivatives and flavonoids in *Copaifera langsdorffii* leaves

June 3, 2017

Erick Vicente da Silva Motta, Juliana de Carvalho da Costa, Jairo Kenupp Bastos*

School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo, Brazil

*Corresponding author: Jairo Kenupp Bastos, Laboratory of Pharmacognosy, School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo Avenida do Café, s/n, Bairro Monte Alegre, Ribeirão Preto, São Paulo, Brazil Zip Code: 14040903 Tel: +551636024230 Fax: +551636332363 email: jkbastos@fcfrp.usp.br

Abstract

Copaifera langsdorffii Desf. (Fabaceae, Caesalpinioideae), popularly known as "copaiba" or "pau d'óleo", is a species of tree that is found throughout Brazil. The leaves of this tree are used in folk medicine to treat kidney stones. Galloylquinic acid derivatives and flavonoids are the main secondary metabolites found in *C. langsdorffii* leaves and are likely to be responsible for the effectiveness of this treatment. As an attempt to produce a phytotherapic, we have developed a reliable HPLC-UV method for the quality control of *C. langsdorffii* leaves. Phenolic compounds were extracted from *C. langsdorffii* leaves using 70% aqueous ethanol as the extraction solvent. HPLC-UV analyses were carried out on a Synergi Polar-RP column (100 x 3.0 mm, 2.5 μm), and the mobile phase was made up of formic acid-water (0.1:99.9, solvent A), and isopropanol-methanol-acetonitrile (5:40:60, solvent B). The elution gradient was A:B (90:10 to 85:15) in 8.0 minutes, followed by A:B (85:15 to 64:36) up to 30.0 minutes, using a flow rate of 0.7 mL/min, and UV detection at 280 nm. This method was used to quantify nine galloylquinic acid derivatives and two flavonoids, which gave a good detection response and linearity in the range of 1.88-110.0 μg/mL. Furthermore, the detection and quantification limits ranged from 0.070-0.752 μg/mL, and 0.211-2.278 μg/mL respectively, with a maximum RSD of 4.18%. The method is reliable for the quality control of *C. langsdorffii* raw material, its hydroethanolic extract, and could potentially be used to quantify these compounds in other *Copaifera* species.

Keywords: copaiba, galloylquinic acid, flavonoid, liquid chromatography, validation, method transfer.