

AROMATIC COMPOUNDS FROM THREE BRAZILIAN LAURACEAE SPECIES

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Phytochemical investigations on three Brazilian Lauraceae species from the Cerrado region of São Paulo State, *Ocotea corymbosa* (Meins) Mez., *O. elegans* Mez. and *Persea pyrifolia* Nees & Mart. ex Nees resulted in the isolation of flavonoids, an ester of the 4-*O-E*-caffeoylquinic acid, an aromatic sesquiterpene besides furofuran lignans. This is the first chemical study on the leaves of *Ocotea elegans* and *O. corymbosa* as well as the first report of non-volatile compounds from *Persea pyrifolia*.

Keywords: Lauraceae; *Ocotea*; *Persea*.

INTRODUCTION

The Lauraceae family comprises 52 genera and approximately 3000 species, mostly from tropical and warm subtropical regions of the world.¹ Lauraceae species present several groups of secondary metabolites, most of them aromatic, which seem to be relevant for chemotaxonomic classification in Lauraceae.²

The genus *Ocotea* comprises ca. 350 species. Previous phytochemical studies have revealed the presence of neolignans, benzylisoquinoline alkaloids, phenylpropanoids, flavonoids and sesquiterpenes,³ besides a variety of volatile components from its essential oils.¹ *Ocotea elegans* is known as *canela de ferro* or *canela preta* in Brazil where it is widespread. Despite its huge distribution, the only study performed on *O. elegans* reports the isolation of neolignans from the stems by using countercurrent chromatography.⁴ *Ocotea corymbosa* is popularly known as *canela de corvo* or *canela fedorenta* in Brazil and its wood is employed in the civil construction industry.⁵ Only two studies were performed on *O. corymbosa*; monoterpenes and sesquiterpenes as well as phytosterols were isolated from the unripe fruits³ and sesquiterpenes with calamenene skeleton were characterized from its bark.⁶ No previous studies have been performed on leaves of *O. corymbosa*.

Persea is a genus that comprises ca. 200 species, the most well studied of these being *P. americana* Mill, known as "avocado fruit". Previous phytochemical studies on avocado seeds identified various classes of natural products such as phytosterols, triterpenes,⁷ fatty acids with olefinic and acetylenic bonds,⁸ alkylfurans,⁹ dimers of flavanols,¹⁰ oligomeric proanthocyanidins¹¹ and glucosylated abscisic acids.¹² *Persea pyrifolia* is popularly known as *maçaranduba* and it is frequently employed in the furniture manufacturing industry.¹³ The only study carried out on *P. pyrifolia* dealt with volatile compounds from the leaves.¹⁴

As part of our on-going program devoted to phytochemical investigations on Brazilian Lauraceae species, in this work we report the isolation of an ester of the 4-*O-E*-caffeoylquinic acid (**1**) and three flavonoids (**2-4**) from *O. corymbosa*, an aromatic sesquiterpene (**5**) and a flavonoid (**6**) from *O. elegans* as well as four furofuran lignans

(**7-10**) from *P. pyrifolia*. This is the first chemical study on the leaves of *O. elegans* and *O. corymbosa* as well as the first report of non-volatile compounds from *P. pyrifolia*.

EXPERIMENTAL

General

Analytical and preparative HPLC separations were performed by using stainless-steel Phenomenex Luna phenyl-hexyl (250 x 4.6 mm and 250 x 22 mm, 5 and 10 μ m particle size, respectively) and Phenomenex Luna C-18 (250 x 4.6 mm and 250 x 22 mm, 5 and 10 μ m particle size, respectively). Mobile phases for chromatography were prepared from HPLC grade solvents. Methanol and acetonitrile were obtained from J.T. Baker (Phillipsburg, NJ, USA) and Tedia (Fairfield, OH, USA), respectively. Water was purified in-house with a Millipore Milli-Q system (Billerica, MA, USA). The analytical HPLC separations were carried out using a Shimadzu (Kyoto, Japan) LC-10Ai pump system, a Shimadzu SIL-10Ai auto injector and a Shimadzu SPD-10Avp UV-Vis detector. The HPLC system used for preparative separations was a Varian (Walnut Creek, CA, USA) PrepStar SD-1 equipped with a Rheodyne (Cotati, CA, USA) injector with a 2 mL sample loop and a ProStar UV-Vis detector. NMR spectra were recorded on a Varian Inova 500 FT-NMR (Palo Alto, CA, USA) spectrometer operating at 500 MHz (¹H) and 125 MHz (¹³C). Chemical shifts were referenced relative to TMS or the corresponding residual solvent signals. Deuterated solvents (CDCl₃ and DMSO-*d*₆) were purchased from Cambridge Isotope Laboratories, Inc. (Andover, MA, USA). DCCC separations were performed using an EYELA D.C.C. - 300 (Tokyo Rikakikai CO LTD). All solvents used for column chromatography (CC) as well as for DCCC were from analytical grade. Silica gel for CC (60-200 μ m) was purchased from Acros Organics (New Jersey, NJ, USA).

Plant material

The specimens *O. elegans* Mez. and *P. pyrifolia* Nees & Mart. ex Nees were collected at Fazenda Campininha, Mogi-Guaçu, SP;

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