



Chemical constituents from *Pleurothyrium cinereum* (van der Werff) (Lauraceae) from Colombia

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1. Subject and source

Plant material corresponding to *Pleuroth?yrium cinereum* (van der Werff) was collected in November 2005 in the indigenous reservation Awa at Alto Albi, in the Tumaco municipality (Department of Narino, Colombia) by biologist Ayda Lucia Patiño. A voucher specimen (number COL518334) was placed at Herbario Nacional Colombiano, Universidad Nacional de Colombia. The *Pleurothyrium* genus is endemic in the South of Central America and the North of South America (van der Werff, 1993). *Pleurothyrium cinereum* species is mainly found in Peru and Ecuador, and in Colombia it may be found to the South of the national territory, in the bordering areas of these countries. Due to its hard and resistant wood it is very frequently used by the Aiwa tribe in Colombia.

2. Previous work

No reports have been found on phytochemical studies carried out on *P. cinereum*.

3. Present study

Dried, ground leaves of *P. cinereum* (250 g) were macerated with ethanol at 18 °C. The ethanolic extract was evaporated by drying (21 g), and fractioned by soxhlet by means of different solvents: petroleum ether (5.2 g), CHCl₃ (3.9 g), AcOEt (1.1 g) and MeOH (9.0 g). The petroleum ether extract was submitted to column chromatography (CC) on silica gel separating it in gradient with a Toluene:AcOiPr mixture (95:5–3:7) to obtain 15 fractions; every fraction was then submitted to CC on silica

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gel repeatedly, under TLC control. Fraction 9 was submitted to CC on silica gel with Tol:AcOEt:MeOH 9:0.5:0.5 as mobile phase to obtain compounds **1** and **2**. From fraction 12, compounds **3–5** were isolated by CC on silica gel eluting it by means of Tol:AcOEt 8:2 later on with preparative TLC by means of Tol:CHCl₃ 7:3. The CHCl₃ extract was submitted to column chromatography on silica gel separating it in gradient with a Tol:AcOEt mixture (9:1–1:1) to obtain 9 fractions. Compounds **6** and **7** were obtained from fraction 4 by CC on silica gel using Hex:AcOEt 6:4 as a separating mixture. From fraction 6, compound **8** was purified by CC on silica gel by means of Tol:AcOEt:MeOH 7:2:1 as a eluting mixture and fraction 7 was passed through CC over silica gel followed by preparative TLC (CH₂Cl₂:AcOEt:acetic acid, 92:6:2), to give compounds **9** and **10**. The following substances were isolated: (+)-de-4''-O-methylmagnolin (**1**, 3.0 mg) (Miyazawa et al., 1993), (+)-demethylpiperitol (**2**, 7 mg) (Pérez et al., 1995), (+)-otobaphenol (**3**, 6.5 mg) (Kohen et al., 1966; Braz Fo et al., 1984), (8*R*)-3,4-dimethoxy-3',4'-methylenedioxy- $\Delta^{7,8'}$ -6,7',8,8'-neolignan (**4**, 7.0 mg) (Martínez et al., 1990), 4-hydroxy-3-methoxy-3',4'-methylenedioxy- $\Delta^{7,8,7',8'}$ -6,7',8,8'-neolignan (**5**, 8.0 mg) (Martínez et al., 1990), macrophyllin-B (**6**, 5.2 mg) (Braz Fo et al., 1980), (7*R*,8*R*,2'*R*,3'*S*,5'*S*)- $\Delta^{8'}$ -3,4,5,5'-tetramethoxy-2',3',4',5'-tetrahydro-2',4'-dioxo-7,3',8,5'-neolignan (**7**, 5.0 mg) (Braz Fo et al., 1980), (+)-mirandin A (**8**, 8.3 mg) (Aiba et al., 1977), (–)-licarin A (**9**, 6.2 mg) (Aiba et al., 1973), (–)-licarin B (**10**, 7.5 mg) (Aiba et al., 1973). The identification of the isolated compounds (Fig. 1) was carried out by spectroscopic methods (IR, NMR ¹H, ¹³C, 2D experiments and MS) and by comparison with data provided by the existing literature. Configuration was established by means of CD curves. Chiroptical properties for compounds **3** and **6–10** are in agreement with reported data (Braz Fo et al., 1980; Antus et al., 2001; Klyne et al., 1966) and following CD data are shown for compounds **1–2** and **4**:

(+)-de-4''-O-methylmagnolin **1**: CD (CH₃OH, $c = 0.023$) nm ($\Delta\epsilon$) 196.6 (–1.02), 198.1 (0), 207.3 (+10.43), 234.0 (+2.45), 274.2 (+1.01).

(+)-demethylpiperitol **2**: CD (CH₃OH, $c = 0.032$) nm ($\Delta\epsilon$) 200.0 (–0.83), 207.3 (+16.21), 229.1 (+2.18), 281.0 (+1.21).

(8*R*)-3,4-dimethoxy-3',4'-methylenedioxy- $\Delta^{7,8'}$ -6,7',8,8'-neolignan **4**: CD (CH₃OH, $c = 0.018$) nm ($\Delta\epsilon$) 237.0 (+5.52), 290 (–3.35).

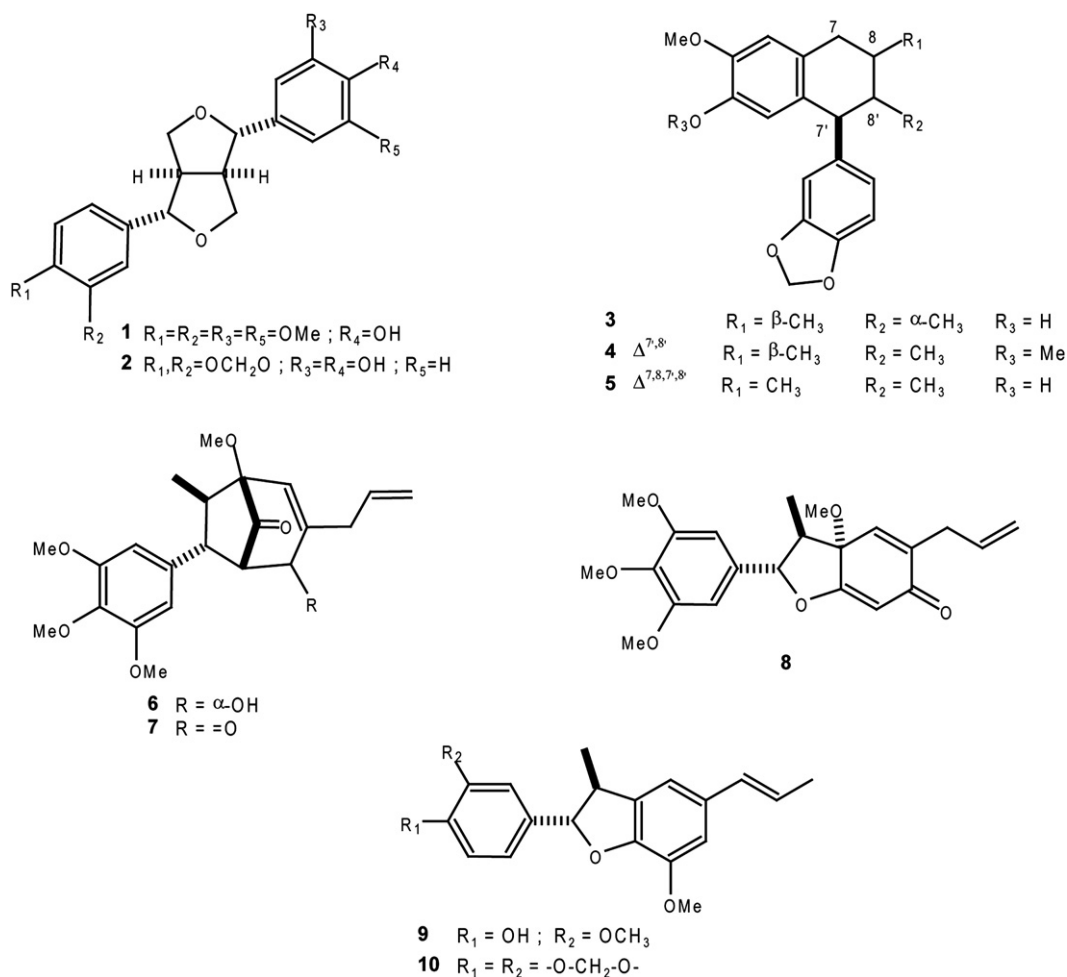


Fig. 1. Isolated metabolites from *P. cinereum* (van der Werff) (Lauraceae).

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