Alkaloids, coumarins and sesquiterpenes from *Esenbeckia conspecta* Kunt (Rutaceae)

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1. **Subject and source**

The wood of *Esenbeckia conspecta* Kunt (Rutaceae) was collected in May 1996 near Playa Azul, Michoacán, México. The plant was identified by M.C. Clara Hilda Ramos and a voucher specimen has been deposited at the National Herbarium (MEXU, voucher CH-124) at the Instituto de Biología, UNAM, México.

2. **Previous work**

Species of *Esenbeckia* Kunt (Rutaceae) have been shown to contain quinoline alkaloids [furoquinolines (Rios and Delgado, 1992a), acridones (Bevalot et al., 1984) and quinolones (Guilhon et al., 1994)], indolic alkaloids and amides (Nakatsu et al., 1990), coumarins and furocoumarins (Trani et al., 1997), limonoids (Dreyer, 1980), sesquiterpenoids, polyprenols, phloroglucinols and triterpenes with friedelane, lupane (Rios and Delgado, 1992b) and dammarane (Mata et al., 1998) skeleta, sterols, flavonoids (Kubo, 1991) and cinnamic acid derivatives (Guilhon et al., 1994) as the
main secondary metabolites. To our knowledge, no phytochemical investigation has been carried out to the *Esenbeckia conspecta* so far.

### 3. Present study

The powdered wood from *E. conspecta* (3.2 kg) was extracted with acetone at room temperature. The removal of the solvent in vacuo rendered 81.2 g of dry extract, which was adsorbed on silica gel and successively chromatographed over silica gel 60 using a gradient of *n*-hexane–ethyl acetate and *n*-hexane–acetone as eluent. The fractions obtained were of 500 ml each. This procedure allowed the isolation of eight groups of fractions that were further subjected to repeated column chromatography using mixtures of *n*-hexane–ethyl acetate as eluent to give in order of increasing polarity: β-sitosterol (98 mg), oleic acid (145 mg), palmitic acid (197 mg), spathulenol (66 mg, Inagaki and Akira, 1985), clovandiol (166 mg, Delgado et al., 1984), auraptene (510 mg, Dreyer, 1969), phellopterin (18 mg, Zorin et al., 1983), 8-methoxy-N-methylflindersine (23 mg, Gray and O’Sullivan, 1980), flindersiamine (33 mg, Vaquete et al., 1976), maculosidine (35 mg, Brown et al., 1954) and β-sitosteryl glucoside (680 mg). The structures of all these compounds were established by comparison of their physical and spectroscopic data (IR, 1H and 13C NMR and MS data) with those of the literature values.

### 4. Chemotaxonomic significance

This is the first time that 8-methoxy-N-methylflindersine has been isolated from *Esenbeckia*. The isolated metabolites are in agreement with the metabolic content of the *Esenbeckia* and Rutaceae.

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### References