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### The Chemistry of Brazilian Quiinaceae.

#### I. Constituents of *Touroulia guianensis* and *Lacunaria jenmani*

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The small family Quiinaceae includes 4 genera (*Froesia*, *Lacunaria*, *Quiina* and *Touroulia*) with 37 central and south american species. Although generally included in the subclass Dilleniidae, order Theales [Cronquist, 1968], and considered derived from the Ochnaceae or the Theaceae, the family has even been placed in the subclass Rosidae, order Linales, and considered derived from the Linaceae [Hegnauer, 1968]. It was hoped that chemical data, lacking at present time, may help to clarify the presently uncertain systematic position.

The analysis of trunk wood of *Touroulia guianensis* Aubl. revealed the presence of 2,6-dimethoxy-p-benzoquinone [Corrêa *et al.*, 1970], friedelan-3 $\alpha$ -ol and friedelin [Drake & Campbell, 1936], sitosterol and  $\beta$ -sitostenone [Lavie & Kaye, 1963], and syringaresinol [Weinges, 1961]. Friedelin, sitosterol and syringaresinol were also isolated from the trunk wood of *Lacunaria jenmani* Ducke.

While, thus, both genera appear to be close chemical relatives, the analysis fails to indicate affinities of the family, since the isolated constituents are of widespread occurrence in the plant kingdom.

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## The Chemistry of Brazilian Lauraceae. XLVII. Ferulic esters from *Endlicheria* and *Ocotea* species

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A specimen from the Torquato-Tapajós Highway, km 133, Amazonas, voucher Herbarium INPA 48255, was identified tentatively with *Endlicheria anomala* Nees (Lauraceae) by Dr. W. A. Rodrigues. A trunk wood sample (1.2 kg) was extracted with ethanol. The chloroform-benzene 1:1 soluble part (15 g) of the extract (38 g) was chromatographed on a silica (360 g) column. Elution with C<sub>6</sub>H<sub>6</sub> gave, in order, fatty ester (2 g, oil), n-tetracosyl ferulate [347 mg, mp 65-67° (C<sub>6</sub>H<sub>6</sub>)], n-tetracosanol [93 mg, 71-73° (C<sub>6</sub>H<sub>6</sub>)] and sitosterol [1230 mg, 138-140° (EtOH)]. Elution with C<sub>6</sub>H<sub>6</sub>-CHCl<sub>3</sub> 9:1, C<sub>6</sub>H<sub>6</sub>-CHCl<sub>3</sub> 8:2 to 0:10, CHCl<sub>3</sub>-AcOEt 9:1 and AcOEt-MeOH 9:1 gave respectively stearic acid [70 mg, mp 68-69° (C<sub>6</sub>H<sub>6</sub>-EtOH)], a stearate of a fatty alcohol [58 mg, mp 86-88° (EtOH-CHCl<sub>3</sub>)], a ferulate of a fatty alcohol [90 mg, mp 77-78° (EtOH-CHCl<sub>3</sub>)] and a glycoside [28 mg, mp 291-293° (EtOH-CHCl<sub>3</sub>)].

n-Tetracosyl ferulate was identified by spectral data (IR, <sup>1</sup>H NMR, MS) and direct comparison with an authentic sample [Franca *et al.*, 1975]. n-Tetracosanol was identified by direct comparison with the alcohol obtained by saponification of the ferulate. Sitosterol and stearic acid were identified by direct

comparison with authentic samples. Saponification of the additional esters, mp 86-88° and 77-78°, gave respectively stearic acid, mp. 69-70°, and ferulic acid, 169-170°.

The simplicity of composition of *E. anomala* contrasts with the diversity and complexity of cinnamate derived metabolites of Lauraceae species described in all previous reports of the present series [for part XLVI see Diaz *et al.*, 1977]. In this respect, the species, nevertheless, does not occupy a peculiar position. Absence of detectable quantities of cinnamate derived metabolites and accumulation of ferulic acid was noted additionally for the following species.

*Ocotea canaliculata* Mez from the Manaus-Itacoatiara Highway, km 140, Amazonas, cf. voucher Herbarium INPA 16896, identified by Dr. W. A. Rodrigues.

*O. guianensis* Aubl. from the Manaus-Ponta Negra Road, Amazonas, voucher Herbarium INPA 50121, identified by B. Albuquerque.

*O. neesiana* (Miq.) Kosterm. from the Manaus-Itacoara Highway, km 69, voucher Herbarium INPA, Manaus 47243, identified by Dr. W. A. Rodrigues

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