

m.p., mixed m.p., $[\alpha]_D$, and i.r.): from benzene fractions. (Filtrate from crystals chromatographed—alumina): β -amyrenyl acetate (0.0047%): from light petroleum fractions. *Triterpene ketone mixture* from light petroleum–benzene (4:1) fractions, separated by fractional recrystallization from the same mixed solvent into *friedelin* (0.10%): in the less soluble, and *shionone* $C_{30}H_{50}O^{1,13-15}$ (0.046%: m.p., mixed m.p., $[\alpha]_D$, i.r. NMR, and analysis): in the more soluble fractions. *Friedelan-3 β -ol* (0.003%): from light petroleum–benzene (7:3) fractions. β -*amyrin* (0.001%): from light petroleum–benzene (2:3) fractions. α -*Spinasterol* (0.033%): from light petroleum–benzene (1:4) fractions.

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EBENACEAE

CONSTITUENTS OF *DIOSPYROS PEREGRINA* FRUIT AND SEED

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Plant. *Diospyros peregrina* Syn. *D. embryopteris*, *D. malabarica*.

Uses. Medicinal, pectin as sizing material and tannin for dyeing and tanning industry.^{1,2}

Previous work. Leaves.³ On sister species.⁴⁻⁹

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Fruit pulp. EtOH concentrate, extrn. ethyl acetate; *n*-hexane soluble fraction: *Hexacosane*, $C_{26}H_{54}$, m.p. mixed¹⁰ m.p., $\nu_{\max}^{KBr}$ 722 cm^{-1} (alkane chain),¹¹ superposable. *Hexacosanol*, $C_{26}H_{54}O$, m.p., mixed¹⁰ m.p., i.r.; acetate, $C_{28}H_{56}O_2$, m.p., i.r. β -*Sitosterol*, m.p., $[\alpha]_D$, mixed m.p., i.r., co-TLC, benzoate, m.p., i.r.

New compound. Monohydroxy triterpene ketone, m.p. 196–197°, $[\alpha]_D^{35} + 60^\circ$, TLC single spot, LB and TNM positive, $\nu_{\max}^{KBr}$ 3500(OH), 1700(CO) cm^{-1} , mol. wt. 440 (M^+), found: C, 82.00; H, 11.18. $C_{30}H_{48}O_2$ required: C, 81.81; H, 10.91%.

Betulin. $C_{30}H_{50}O_2$, m.p., $[\alpha]_D$, mixed³ m.p., i.r., co-TLC, diacetate, $C_{34}H_{54}O_4$, m.p., $[\alpha]_D$, i.r. *Lupeol*, $C_{30}H_{50}O$, m.p., mixed¹² m.p., $[\alpha]_D$, i.r., co-TLC; m.p., $(\alpha)_D$, i.r. of acetate and benzoate.

n-Hexane insoluble fraction: β -*D-Glucoside of β -sitosterol*, $C_{35}H_{60}O_6$, m.p., mixed¹² m.p., $[\alpha]_D$, co-TLC, i.r.; m.p., $[\alpha]_D$ of tetraacetate, $C_{43}H_{68}O_{10}$ and tetra-benzoate, $C_{63}H_{76}O_{10}$; acid hydrolysis to glucose and β -sitosterol.

Ethyl acetate soluble, conc. and crystn. (water): *Gallic acid*, m.p., mixed m.p., co-TLC (spray, $FeCl_3$ – $K_3Fe(CN)_6$),¹³ i.r.

Seed. Stony hard; extrn. EtOH, *n*-hexane soluble fraction: *Betulinic acid*, $C_{30}H_{48}O_3$, m.p., mixed¹⁴ m.p., $[\alpha]_D$, co-TLC, i.r.; m.p., mixed¹⁴ m.p., $[\alpha]_D$, i.r. of methyl ester, $C_{31}H_{50}O_3$ and methyl ester acetate, $C_{33}H_{52}O_4$.

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LEGUMINOSAE

TERPENOIDS FROM *COPAIFERA LANGSDORFII*

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Abstract—The oleoresin of *Copaifera langsdorfii* L. has been found to contain some sesquiterpene hydrocarbons and diterpene acids. Caryophyllene, copaene, β -bisabolene, polyalthic acid, (–)-kaur-16-en-19-oic acid, (–)-16 β -kauran-19-oic acid and eperu-8(20)-en-15,18-dioic acid were isolated.