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GYMNOSPERMAE

CUPRESSACEAE

SESQUITERPENES OF *JUNIPERUS CONFERTA*

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Plant. Juniperus conferta Parl. *Source.* The Yokohama beach of the Shimokita peninsula at Aomori, Japan. *Use.* Spicing of liquor.[1] *Previous works.* On leaves;[2,3] on tropolones of heartwood;[4] on sister species.[5–7]

Present work. Examination of the volatile neutral fraction of the heartwood extractive using vacuum distillation, column chromatography (alumina and silica), preparative GLC, and preparative TLC.

The chipped heartwood (32 kg) were extracted with MeOH under reflux and the extract evaporated *in vacuo* to give dark red residue, which re-extracted with hexane at room temperature. The hexane extract, after shaking with 2% NaOH and evaporation of the solvent *in vacuo*, yielded neutral fraction (233 g). A part of this fraction was submitted to the above separation methods and thereby the following sesquiterpenes* were isolated: *longifolene*,[7] $C_{15}H_{24}$ (M at *m/e* 204), b.p. 120°/9, $[\alpha]_D^{24}$ + 38·2° (IR, NMR, MS and co-GLC); *thujopsene*,[8] $C_{15}H_{24}$ (M at *m/e* 204), b.p. 120°/10, $[\alpha]_D^{24}$ 114° (IR, NMR, MS and co-GLC); *cuparene*,[9] $C_{15}H_{22}$, b.p. 95°/5 (bath), n_D^{25} 1·4904 (IR, NMR and co-GLC); *an unidentified sesquiterpene oxide*,† $C_{15}H_{24}O$ (M at *m/e* 222), b.p. 115°/5 (bath), $[\alpha]_D^{20}$ − 145°, ν_{max}^{liq} (cm^{-1}): 1100, 1050, 1040, $\delta_{CCl_4}^{TMS}$: 0·81 (s, CH_3), 0·87 (s, CH_3), 0·96 (s, CH_3), 1·10 (s,CH_3), 3·36 (m, ≡C—O—C<u>H</u>—); *juniperol acetate*[10], $C_{17}H_{28}O_2$ (M at *m/e* 264), m.p. 43–44°, $[\alpha]_D^{20}$ + 25·0°, ν_{max}^{KBr} (cm^{-1}): 1737, 1243, $\delta_{CCl_4}^{TMS}$: 0·75 (s, 2 × CH_3), 0·83 (s, CH_3), 0·90 (s, CH_3), 1·98 (s, —OCOC<u>H</u>$_3$), 5·14 (q, =C<u>H</u>OCOCH_3, J = 2·3 Hz), which yielded on an alkaline hydrolysis juniperol,[10] $C_{15}H_{24}O$ (M at *m/e* 220), m.p. 108–109°, $[\alpha]_D^{25}$ + 18·5°; *cedrol*,[5] $C_{15}H_{26}O$ (M at *m/e* 222), m.p. and m.m.p. 86–87°.

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* These are arranged in order of increasing retention time of GLC.

† The structural elucidation of this compound will be described elsewhere.

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Key Word Index—Juniperus conferta; Cupressaceae; sesquiterpenes; longifolene; thujopsene; cuparene juniperol acetate; cedrol.