

**Isolation of Lyoniol-A, -B, and -C, the Toxic Principles
of *Lyonia ovalifolia* var. *elliptica***

Recently, Ikeda and Suzuki¹⁾ reported on the toxic principle, lyoniatoxin, $C_{22}H_{34}O_7$, m.p. 243° (decomp.) (deacetyl derivative, m.p. 258° (decomp.)), isolated from the leaves of *Lyonia ovalifolia* SIEB. et ZUCC. var. *elliptica* HAND.-MAZZ.

Three other toxic compounds, lyoniol-A, -B, and -C were isolated by alumina column chromatography from the crude toxic substances of m.p. $227\sim 229^\circ$, $239\sim 241^\circ$, and $242\sim 244^\circ$, extracted from the sprouts of the same plant.²⁾ Lyoniol-A is also the principal component of the toxic compounds extracted from its wood.³⁾

The physical constants of these compounds are as follows: Lyoniol-A: Colorless needles (from ethyl acetate), m.p. $211.5\sim 229.5^\circ$ * (*Anal.* Calcd. for $C_{22}H_{34}O_7 \cdot H_2O$: C, 61.66; H, 8.47; O, 29.87; H_2O , 4.20. Found: C, 61.81, 61.59; H, 8.47, 8.50; O, 30.39; H_2O , 4.62). $[\alpha]_D^{15.3} -40.7^\circ$ ($c=0.3387$, MeOH). IR $\nu_{max}^{KBr} cm^{-1}$: 3523 (OH); 1713, 1282 (OAc). LD₅₀ 4.9 mg./kg. (mice). Dried sample, m.p. $211\sim 223.4^\circ$ (*Anal.* Calcd. for $C_{22}H_{34}O_7$: C, 64.37; H, 8.35; O, 27.28; mol. wt., 410.5. Found: C, 64.50; H, 8.25; O, 27.49; mol. wt. (Rast), 383), IR $\nu_{max}^{KBr} cm^{-1}$: 3527 (OH); 1722, 1258 (OAc).

Deacetyl-lyoniol-A: Produced by hydrolysis with sodium hydroxide solution and reverted to lyoniol-A with acetic anhydride and pyridine. Colorless plates (from ethyl acetate) with solvent of crystallization, m.p. $279\sim 281^\circ$ (*Anal.* Calcd. for $C_{20}H_{32}O_6$: C, 65.19; H, 8.75; O, 26.06. Found: C, 65.49; H, 8.68; O, 25.94). IR $\nu_{max}^{KBr} cm^{-1}$: 3572, 3529 (OH).

Lyoniol-B: Colorless needles (from nitromethane), m.p. $274.7\sim 277.3^\circ$ (*Anal.* Calcd. for $C_{20}H_{32}O_6$: C, 65.19; H, 8.75; O, 26.06; mol. wt., 368.5. Found: C, 65.26, 65.21; H, 8.68, 8.92; O, 25.65; mol. wt. (Rast), 374). $[\alpha]_D^{14.3} -150.4^\circ$ ($c=0.2685$, MeOH). IR $\nu_{max}^{KBr} cm^{-1}$: 3551 (OH). LD₅₀ 1.1 mg./kg. (mice).

Lyoniol-C: Colorless long plates (from benzene) with solvent of crystallization, m.p. $255\sim 259^\circ$ (*Anal.* Calcd. for $C_{18}H_{30}O_7$: C, 60.31; H, 8.44; O, 31.25; mol. wt., 358.4. Found: C, 60.20; H, 8.48; O, 31.40; mol. wt. (Rast), 360). $[\alpha]_D^{15} -118^\circ$ ($c=0.2339$, MeOH). IR $\nu_{max}^{KBr} cm^{-1}$: 3550 (OH). LD₅₀ 1.9 mg./kg. (mice).

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* All m.p.s were determined by micro-method and are uncorrected.

1) N. Ikeda, Y. Suzuki: *Syoyakugaku Zasshi*, **14**, 45 (1960).

2) M. Yasue, Y. Kato, T. Kishida, H. Ota: *Nagoya Shiritsudaigaku Yakugakubu Kiyo*, No. **8**, 35 (1960).

3) M. Yasue, Y. Kato: *Yakugaku Zasshi*, **81**, No. 4 (1961) to be published.