

TRITERPENE METHYL ETHERS OF *CORTADERIA SPLENDENS*

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Key Word Index—*Cortaderia splendens*; Gramineae; α -amyrin methyl ether; β -amyrin methyl ether.

Plant. *Cortaderia splendens* Connor. **Occurrence.** Northern New Zealand.¹ **Source.** Plant raised from seeds collected in the wild at Muriwai Beach, Auckland, and grown in experimental gardens at Botany Division, Lincoln; specimens deposited at CHR. **Previous work.** Martin-Smith *et al.*^{2,3} found no triterpene methyl ethers in leaf and sheath surface wax of this species, previously referred to as 'Raglan' *C. toetoe*² and *Cortaderia* 'Raglan'.³ They found arundoin in *C. fulvida*, *C. richardii* and *C. toetoe*, and the methyl ethers of α -amyrin and β -amyrin also in *C. toetoe*.

Present work. Surface wax of leaves and sheaths was extracted with light petrol. and chromatographed on neutral alumina; elution with light petrol. and light petrol.-C₆H₆ (4:1). Crystalline fractions were characterized by IR and GLC retention time and resolved into two components.

Compounds isolated. α -Amyrin methyl ether and β -amyrin methyl ether were isolated by preparative GLC, re-crystallized from EtOAc, and identified by m.p., m.m.p. with authentic material, IR, GLC, MS, NMR and optical rotation.

Discussion. Although Martin-Smith *et al.*^{2,3} reported that two samples of this species lack triterpene methyl ethers, we find a polymorphism in triterpene methyl ether expression in that 4 plants contained them and 17 plants lacked them among 21 examined. Of these plants, 15 were derived from a single parent and triterpene methyl ethers were present in 3 of them. Triterpene methyl ethers were found in both female and hermaphrodite plants, indicating that biosynthesis is not sex linked. Furthermore, as evidenced by analyses repeated over a period of time, there is no loss of ability to synthesize these compounds between years. We agree with Martin-Smith *et al.* that arundoin, a common triterpene methyl ether in *Cortaderia*, is absent from *C. splendens* and that this species is biochemically distinct from the three other indigenous New Zealand species. Methyl ethers of α -amyrin and β -amyrin always co-exist in our material; there is no evidence that either one or the other occurs alone in *Cortaderia*. The only recorded occurrences of the methyl ethers of α - and β -amyrin, apart from *Cortaderia*, are from *Eragrostis curvula* where both co-exist with the other triterpene methyl ethers arundoin and cylindrin,⁴ and in *E. ferruginea* where β -amyrin methyl ether co-occurs with miliacin.⁴

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¹ CONNOR, H. E. (1971) *N.Z. J. Botany* **9**, 519.

² MARTIN-SMITH, M., SUBRAMANIAN, G. and CONNOR, H. E. (1967) *Phytochemistry* **6**, 559.

³ MARTIN-SMITH, M., AHMED, S. and CONNOR, H. E. (1971) *Phytochemistry* **10**, 2167.

⁴ OHMOTO, T., IKUSE, M. and NATORI, S. (1970) *Phytochemistry* **9**, 2137.