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MONOCOTYLEDONAE

LILIACEAE

FLAVONOIDS OF SQUILL, *URGINEA MARITIMA*

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Plant. Bulbs of *Urginea maritima* Bak. collected in Iberian peninsula and Balearic Islands. *Previous work.* Cyanidin-3-monoglucoside free and acylated with caffeic acid.[1] *Compounds identified.* From extraction of fresh bulbs with ethanol 85% final concentration, fractionation by filtration through polyamide,[2] and preparative PC the following compounds were isolated and identified by comparison with reference compounds using the usual chromatographic and spectrophotometric methods:[3]

Major compounds; dihydroquercetin-4′-monoglucoside and quercetin-3-monoglucoside. Minor compounds; quercetin, dihydroquercetin and kaempferol-3-triglucoside. Other compounds detected; several acylated polyglycosides and various simple and complex glycoflavones based on luteolin and apigenin; difficulties in isolation are due to the presence of cardiotonic glycosides which show a similar behaviour in the chromatographic systems.

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Key Word Index—Urginea maritima; Liliaceae; kaempferol 3-triglucoside; dihydroquercetin 4′-glucoside; quercetin derivatives.

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ZINGIBERACEAE

TERPENOIDS OF TWO *AMOMUM* SPECIES FROM THAILAND

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Plant. Amomum cardamomum L. *Source.* Thailand (known locally as Krawan). *Uses.*

Seeds used as a condiment and ground rhizomes used medicinally for colds.[1] *Previous work.* The presence of borneol, camphor and 1,8-cineol has been reported.[1]

Fruit. The dried comminuted fruit was steam distilled yielding a pale yellow oil which had an odour reminiscent of cardamom. The oil was then analysed using a combination of techniques described previously,[3,4] and the components characterized by IR spectral comparison with those of authentic compounds or from published data. Each compound was also characterized, its retention time being compared with that of an authentic compound. The oil was found to contain: 1,8-cineol (66·8), β-pinene (15·5), α-terpineol (5·4), α-pinene (3·6), humulene (2·9), caryophyllene (1·2), myrcene (0·7), *p*-cymene (0·5), humulene epoxide II (0·5), sabinene (0·4), limonene (0·3), terpinen-4-ol (0·2), carvone (0·2), myrtenal (0·1) and δ-terpineol (0·1). The figures in parentheses refer to area percentages calculated from electronic integration measurements using a flame ionization detection of a temperature and pressure programmed GLC analysis on a column of Carbowax 6000.

Plant. Amomum globosum Lour. (≡ *Alpinia globosa* (Lour.) Horan ≡ *Languas globosa* (Lour.) Burkhill). *Source.* Thailand (known locally as 'Reow'). *Uses.* Locally as a condiment.[1] *Previous work.* The oil is reported to be rich in camphor.[5]

Fruit. Freshly ground dried fruit was steam distilled to yield a pale yellow oil (2·5%) which had a camphoraceous odour. The oil, which was analysed as above, was found to contain: camphor (38·9); bornyl acetate (25·2); farnesol (4·7); camphene (4·2); limonene (4·1); α-amorphene (3·5); α-phellandrene (2·4); linalool (1·9); δ-selinene (1·5); α-pinene (0·8); geranial (0·7); *trans*-nerolidol (0·7); geranyl acetate (0·6); nerol (0·5); borneol (0·4); δ-cadinene (0·4); 1,8-cineol (0·3); fenchyl acetate (0·3); neryl acetate (0·3); *trans*-α-bergamotene (0·3); copaene (0·2); β-pinene (0·1); α-ylangene (0·1); *ar.* curcumene (0·1); and geranyl acetone (0·1). Traces of *p*-cymene and terpinolene were also found to be present.

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Key Word Index—Amomum cardamomum; *Amomum globosum*; Zingiberaceae; essential oils; monoterpenes; sesquiterpenes.