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ISHWARANE IN *BIXA ORELLANA* LEAF OIL

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The reported presence of a sesquiterpene hydrocarbon called bixaghanene of unknown structure in the leaf oil of *Bixa orellana* L.[1] prompted us to analyse it by a combination of techniques previously described[2,3] to establish the structure of this unknown hydrocarbon. The oil, which contained a large percentage of sesquiterpenes, had a major component (54%) for which the spectral characteristics and chemical properties were found to be identical with the uncommon tetracyclic sesquiterpene hydrocarbon ishwarane. Although this compound, which has recently been synthesized,[4] has been previously isolated from *Aristolochia indica* (Aristolochiaceae)[5] and *Cymbopetalum pendulifolum* (Annonaceae)[6] it is believed that the oil of *Bixa orellana* is the richest source of this compound found to date. In addition to ishwarane the oil contained: selina-4(15),11-diene (4·7%), valencene (4·0%), β-elemene (2·8%), caryophyllene (2·8%), germacrene-*D* (2·6%), *trans*-nerolidol (2·3%), selina-3,11-diene (2·2%), selina-5,11-diene (2·0%), β-selinene (1·3%), copaene (1·3%), δ-cadinene (1·0%), α-terpineol (1·0%), spathulenol (1·0%), γ-cadinene (0·9%), δ-elemene (0·9%), ledol (0·9%), α-muurolene (0·6%), α-cadinol (0·4%), aromadendrene (0·4%), aristolochene (0·2%), *trans*-ocimene (0·1%) and caryophyllene oxide (0·1%).

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