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ESSENTIAL OILS FROM THE QUEENSLAND FLORA.  
PART XV.—BACKHOUSIA BANCROFTII AND DAPHANDRA RAPANDULA.

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*Essential Oils from the Queensland Flora—Part XV.*  
*Backhousia Bancroftii* and *Daphnandra rapandula*.

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AS part of an extensive programme of research on Queensland plant products, made possible by a grant from the Commonwealth Council for Scientific and Industrial Research, the oils of *Backhousia Bancroftii* and *Daphnandra rapandula* were obtained for examination. The yield of oil in each case however, was too small to permit of a thorough investigation.

Both oils were found to contain sesquiterpenes as the principal constituents with pinene and esters as minor constituents.

*Backhousia Bancroftii*.

220 lb. of leaves yielded 35 cc. of oil with the following constants:—

$d_{15.5}$	..	..	..	..	·926
$n_D^{20}$	..	..	..	..	1·4948
$[\alpha]_D$	..	..	..	..	+ 8
Ester value	..	..	..	..	29·4
Ester value after acetylation	..	..	..	..	66
Acid value	..	..	..	..	0

On distillation under reduced pressure (2 mm.) the following principal fractions were obtained.

(1). From liquid ammonia trap	..	..	..	$d_{15.5}$	..	·8655
				$[\alpha]_D$	..	+37
				$n_D^{20}$	..	1·4634
(2). 50–65°C. (2cc.)	..	..	..	$d_{15.5}$	..	·9034
				$[\alpha]_D$	..	0
(3). 65–72°C. (12cc.)	..	..	..	$d_{15.5}$	..	·9154
				$[\alpha]_D$	..	+ 2·6
				$n_D^{20}$	..	1·4894
(4). 77–87°C. (2½cc.)	..	..	..	$d_{15.5}$	..	·9441
				$n_D^{20}$	..	1·4968

Fraction (1) was shown to contain d- $\alpha$ -pinene by oxidation with permanganate to pinonic acid, identified by its semicarbazone m.p. 207°C.

Fraction (2) was principally an ester which on hydrolysis yielded a sweet-smelling alcohol which was not identified. The acid present was identified as acetic by silver salt estimation which yielded 64.4 per cent. Ag.

The physical constants of fractions (3) and (4) indicated the presence of a sesquiterpene and a sesquiterpene alcohol which was confirmed by the characteristic colour reaction with bromine and glacial acetic acid.

*Daphnandra rapandula.*

120 lb. of very dry leaves gave 140 cc. of oil with:

	$d_{15.5}$	..	..	·9260
	$[\alpha]_D$	..	..	+26.4
	$n_D^{20}$	..	..	1.4903
Ester value	..	..	..	4.6
Ester value after acetylation	..	..	..	53.6
Acid value	..	..	..	0

Fractionation of 100 cc. under reduced pressure (2 mm.) gave:—

(1) A fraction (10 cc.) collected in the liquid ammonia trap having

	$d_{15.5}$	..	..	·8454
	$[\alpha]_D$	..	..	+37.4
	$n_D^{20}$	..	..	1.464

Oxidation with permanganate gave a product whose semicarbazone melted at 207°C. and at the same temperature when mixed with pinonic acid semicarbazone. Hence the presence of *d*- $\alpha$ -pinene. The low density material of this fraction was not identified.

(2). A fraction (1cc.)	..	b.p.	..	42–46°C.
		$d_{15.5}$	..	·8779

On hydrolysis with alcoholic KOH acetic acid was shown to be present by qualitative reactions. The alcohol liberated from the ester was not identified.

(3). A fraction	..	..	b.p.	..	73–79°C.
			$d_{15.5}$	..	·9254
			$[\alpha]_D$	..	+ 5.7
			$n_D^{20}$	..	1.497

This was a sesquiterpene with constants closely resembling those of aromadendrene but on ozonolysis no aromadendrone was isolated.

(4). A fraction	..	..	b.p.	..	88–92°C.
			$d_{15.5}$	..	·920
			$[\alpha]_D$	..	+35.8
			$n_D^{20}$	..	1.4970

A drop dissolved in glacial acetic acid yielded a violet colour on the addition of bromine vapour.

On dehydrogenation with sulphur under 40 mm. pressure, a small quantity of an azulene was formed (m.p. of picrate 120°C.)

(5). A viscous oil	..	..	b.p.	..	100–112°C.
			$d_{15.5}$	..	·9559
			$[\alpha]_D$	..	+ 8.66

This was a sesquiterpene alcohol, for on treatment with formic acid a sesquiterpene  $d_{15.5}$  ·9145 was isolated which gave a deep blue colour with bromine in acetic acid.

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