



BUSINESS DEVELOPMENT BRANCH

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Media Release

Preliminary oil results from a 14-year-old Indian Sandalwood (*Santalum album*) plantation at Kununurra, WA

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Preliminary results of oil samples taken from young Forest Products Commission Indian sandalwood trees are producing good quality, but small amounts, of oil.

The results are encouraging as the trees, which come from the first Indian sandalwood plantation on the Ord River Irrigation Area (ORIA) Kununurra, Western Australia, were aged 14 years.

Today, over 1,000 ha of land has been planted into sandalwood on the ORIA by private companies, farmers and the Forest Products Commission (FPC). Indian sandalwood is typically established on mounded lines, together with a pot-host, intermediate host and a long-term host (Pic 1). Flood irrigation is commonly used to water the trees

Sandalwood establishment and growth have been good at Kununurra, but more information is required on oil production within these young trees. In December 2004, twenty Indian sandalwood trees (age 14 years) within an FPC plantation were sampled for total oil yield and santalol content (Pic 2). "Chips" (heartwood only) and "cores" (heartwood plus sapwood) were taken from each sandalwood stem at 30 cm and 100 cm from the base, and were analysed using solvent extraction.

The trees contained approximately 34 % heartwood at 30 cm, and 29 % heartwood at 100 cm. The mean total extractable oil yields were 2.9-3.4 % from chips, and 1.8-2.0 % from cores. These oil readings are approximately half that obtained from mature trees aged over 50 years growing in India, which have an average oil yield of 5-7 %.

The heartwood oil contained 44.7-46.7 % α -santalol and 20.8-22.2 % β -santalol. These santalol levels meet the current ISO standards for *S. album* oil, which are 41-55 %

α -santalol and 16-24 % β -santalol (ISO 3518: 2002E). This implies that although the oil yield was low, the quality of the oil would meet sandalwood oil requirements.

Oil yields were highly variable between trees, with some as high as 7.1 %, while three trees had less than 0.3 %. These trees were all growing under the same conditions, which indicates that there is huge variation and there could be some genetic control that could be exploited. Until this is better understood, future plantings at Kununurra should aim to use seeds or progeny from known superior oil producing parent trees.

These results from core samples provide evidence that the young Indian sandalwood plantations at Kununurra are producing oil. However, whole trees need to be harvested and the amount of heartwood and oil content measured to estimate the value of the plantations.

This article is from a paper that will be published in the SRN:

Brand, J., Kimber, P. and Streatfield, J. (2006). Preliminary analysis of Indian sandalwood (*Santalum album* L.) oil from a 14-year-old plantation at Kununurra, Western Australia. *Sandalwood Research Newsletter* **21**.

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Pics available on request.

Pic 1. One-year-old Indian sandalwood seedlings beneath host plants, within an FPC plantation (Photo: G. Pronk).

Pic 2. 14-year-old FPC Indian sandalwood plantation (Photo: L. Barbour).