

# PORIM SERIES 2

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**M**alaysia is currently the leading producer and exporter of palm oil in the world and, in order to stay in the forefront, new planting materials with different oil compositions have to be developed to meet the future needs of the industry. PORIM has taken the initiative to produce PORIM Series 2 (PS2) planting materials of high iodine value (I.V.) for a more unsaturated and liquid palm oil (Rajanaidu *et al.*, 1998; 1999). An increase in unsaturation is desirable due to consumer demands for monounsaturated and polyunsaturated dietary oils and fats. A higher unsaturation level in palm oil enables better penetration into the liquid oil market. The fatty acid composition (FAC) of palm oil of current planting materials limits its share of the liquid and salad oil markets in temperate countries. Palm oil is semi-solid at room temperature (28° C) and can be fractionated into 70 % liquid olein and 30 % solid stearin. The quality of oil can be improved by reducing stearin and increasing olein levels in crude palm oil (CPO).

More than 3000 palms of the PORIM-Nigerian germplasm have been screened for high I.V., with prospects of reducing the palmitic and increasing the oleic acids. Many individual palms from the collection have an I.V. in excess

TABLE 1. PORIM-NIGERIAN *DURA* FAMILIES SELECTED FOR HIGH IODINE

Family	Fresh fruit bunch		Iodine value
	(kg/p/yr)	(t/ha/yr)	
1	179.5	26.6	61.1
2	217.2	32.1	63.4
3	193.5	28.6	64.4

of 60, which is higher than the current palm oil with I.V. values of 50 – 53. With further fractionation of CPO, it is projected that the I.V. of the olein component could reach 70 (Rajanaidu *et al.*, 1999).

Selected *dura* and *tenera* palms have been used to produce planting materials with high I.V. Three families of the PORIM-Nigerian *dura* (Table 1) were selected for the following traits:

- High yield
- High iodine value (unsaturation)

High yielding and high I.V. palms from the selected fami-

TABLE 2. IODINE VALUES OF SELECTED PORIM-NIGERIAN PALMS AND THEIR SELFED PROGENIES

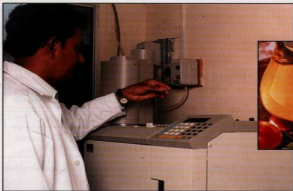
Parental palms		Progeny	
Palm No.	Iodine value	Progeny code	Iodine value
0.151/814	61.4	PK 486	61.4
0.151/146	65.4	PK 488	60.0
0.151/1861	61.4	PK 591	61.9
0.151/305	61.4	PK 543	59.0
0.151/971	64.4	PK 549	60.8
0.151/48	61.4	PK 515	64.2
0.151/903	63.9	PK 533	59.5
0.151/1662	66.4	PK 597	58.8
0.151/618	61.2	PK 507	64.6
0.151/128	63.4	PK 540	61.6
Progeny mean			61.2

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◀ Determination of iodine value using GLC equipment.



▲ High iodine value palms produce more liquid oil and can be used as salad oil in cold countries.

lies were selfed and planted for the production of PS2 planting materials. Early observation (Rajanaidu *et al.*, 1998; 1999) suggests that I.V. is transmitted from parents to the progenies (Table 2).

The high I.V. *durans* are being progeny tested with the high I.V. *tenera* palm 0.151/128 (Table 2). Selfs of 0.151/128 (also referred as 128T) had been planted to generate *pisiferas* for the next generation of high I.V. planting materials, the PS2.1.

## REFERENCES

RAJANAIDU, N; JALANI, B S and KUSHAIRI, A (1998). Oil palm genetic resources – the development of novel

planting materials. In *Proc. 1998. Intl. Oil Palm Conf. – Commodity of the Past, Today and the Future*. Jatmika, A; Bangun, D; Asmono, D; Sutarta, E S; Pamin, K; Guritno, P; Prawirosukarno, S; Wahyono, T; Herawan, T; Hutomo, T; Darmosokarno, W; Adiwiganda, Y T; and Poeloengan, Z (eds.) Indonesian Oil Palm Research and Indonesian Producers Association. p. 208-220.

RAJANAIDU, N; JALANI, B S and KUSHAIRI, A (1999). The development of dwarf (PS1) and high iodine value (PS2) planting materials. Paper presented in 1999 PORIM Int. P.O. Cong. *Emerging Technologies and Opportunities in the Next Millennium* [Diskette of the 1999 PIPOC Agriculture (1) – a:\P12\paperaja]. Palm Oil Res. Inst. of Malaysia, Bangi. 12 pp.

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