

Short Communication

Pak. j. sci. ind. res., vol. 37, no.5, May 1994

The Fatty Acid Composition of *Pithecellobium dulce* Seed Oil

L.M. KHATRI, M.K.A. NASIR, ROBINA SALEEM AND

M.U. VALIARI*

PCSIR Laboratories Complex, Karachi-75280, Pakistan

(Received July 28, 1992; revised December 20, 1993)

Pithecellobium dulce Benth (Leguminosae) locally known as "Jungle jalabi", Vilaiti imli" and "Dakhani babul" is a large tree introduced from Mexico and cultivated throughout Indo-Pak. subcontinent as a hedge plant. The fruit is a turgid pod, twisted, 10-18 cms long with 6-8 seeds surrounded by an edible whitish pulp [1].

The seeds (150 g) were collected from the vicinity of the PCSIR Campus of Karachi Laboratories Complex, ground and extracted with *n*-hexane in a Soxhlet extractor. The extract was dried over sodium sulphate (anhydrous) and the solvent removed under reduced pressure. The physico-chemical properties of the oil as determined by AOCS methods [2] were as in Table 1.

TABLE 1.

1. Yield	12.0%
2. Acid value	3.48
3. Saponification value	180.9
4. Refractive index	1.4682 @ 32°
5. Iodine value	82.3
6. Unsaponifiable matter	0.35%
7. Colour in 1" lovibond cell	3R+30Y

The saponification of the oil and methylation of the resulting fatty acids were carried out as usual by standard methods. GLC of the methyl esters was done using a G.C -9A

* Institute of Chemistry, University of Sindh, Jamshoro, Pakistan.

Shimadzu gas chromatograph fitted with a flame ionisations detector. The identification and percentage composition of the component fatty acids were determined by running a standard mixture of methyl esters, their retention time and peak areas.

The GLC analysis showed the presence of palmitic (12.9%), stearic (4.4%), oleic (34.0%), linoleic (21.4%), behenic (11.5%) and lignoceric (5.8%), as the main component fatty acids. Small amounts of myristic (0.1%), palmitoleic (0.9%), linolenic (1.1%), arachidic (2.8%), gadoleic (2.2%), and erucic acid (0.9%) were also detected.

Choudhury *et al.* [3] and Nigam and Mitra [4] have reported oleic acid as 51.1 and 47.3% respectively in *P. dulce* seed oil while Badami and Desai [5] showed 32.2% which is quite close to the present findings. The content of linoleic acid detected by Choudhury *et al.* [3] is very low (3.3%) as compared to the present work but similar (21.7%) to that reported by Nigam and Mitra [4]. The presence of erucic acid (0.9%) has been found for the first time in *P. dulce* seed oil.

Key words: *Pithecellobium dulce*, Leguminosae, Seed oil, Fatty acid.

References

1. George Watt, *Dictionary of Economic Products of India* (Govt. of India, Department of Revenue and Agriculture, Calcutta, 1889), Vol. VI, Part 1, pp.281.
2. *Official and Tentative Methods of the American Oil Chemists Society* (AOCS, Chicago, IL., 1969), Vol. I, 3rd edn., Method Nos. Cd 3a-63, Cd 3-25, Cc 7-25, Ca 6a-40 and Cd 1-25.
3. A.R. Chowdhury *et al.*, *J. Am. Oil Chem. Soc.*, **61**, 1023 (1984).
4. S.K. Nigam and C.R. Mitra, *Chem. Abs.*, **74**, 136392 (1971).
5. R.C. Badami and V.A. Desai, *Chem. Abs.*, **75**, 7739 (1971).