

Short Communication

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Studies on Musk Melon Seed Oil

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The family Cucurbitaceae containing 100 genera with 850 species is distributed throughout the warmer parts of the world such as tropical and sub-tropical region of America, India and Pakistan [1]. Eight new varieties of melon locally known as 'Kharbooza' of genus *Cucumis* and species *Cucumis melo* of the family Cucurbitaceae have been produced on large scale in the province of Sindh, Pakistan. These new varieties created an interest to find out physico-chemical characteristics of oil extracted from these seeds.

acids. The previous workers [3] in Pakistan found out the oil contents and fatty acid composition of the musk melon grown in the Punjab. It contains 26.7% oil, whereas eight varieties of musk melon grown in Sindh contain 20.7, 32.4% oil (Table 1). So it is evident that some of varieties contain higher percentage of oil. In addition to it most of these varieties contain higher percentage of essential fatty acids i.e. linoleic acid which being a precursor of arachidonic acid and eventually of prostaglandines has been determined in accessory genital glands, sexual plasma and lung tissue of the human body [4]. The Dhari dar and Trini can be considered the best variety due to comparatively high oil contents i.e. 32.4 and 31.3% respectively and higher percentage of linoleic acid 62.0 and 64.6% respectively. The physico-chemical characterisation was

TABLE 1. THE PHYSICO-CHEMICAL CHARACTERISTICS AND FATTY ACID COMPOSITION OF MUSK MELON SEED OIL.

Characteristics	Varieties							
	NV-990	High cross American	Dhari dar	Sindhi desi (Jalidar)	Sindhi red	Tarini	Due time	Hybrid American
Yield (%)	25.0	25.2	32.4	27.6	29.7	31.3	20.7	23.3
Moisture (%)	6.1	6.9	8.3	7.2	7.1	7.8	9.7	7.6
Unsaponifiable %	1.1	1.1	1.1	1.2	1.5	1.1	1.4	1.1
Free fatty acids %	0.9	0.9	0.4	0.4	0.5	0.6	0.6	0.2
Iodine number	114.5	135.8	132.0	122.6	127.2	134.3	120.0	131.5
<i>Fatty acids</i>								
C _{16:0}	9.0	11.6	9.4	8.8	9.1	10.7	8.3	11.0
C _{18:0}	8.0	5.4	5.3	5.4	5.8	3.0	6.9	5.1
C _{18:1}	32.0	17.6	23.3	25.2	24.3	21.7	20.9	22.0
C _{18:2}	51.0	65.4	62.0	60.6	60.8	64.6	53.9	61.9

The solvent extraction process was applied to produce yellow coloured oil out of decorticated seeds. The oil was methylated by a mixture of methanol, benzene and acetyl chloride and the methyl esters were purified by thin layer chromatography [2] and identified by using the column (152.4 cm x 0.95 cm) of polyethylene glycol succinate (10%) coated on diatomite "C" (80-100 mesh) at 200°. The nitrogen at the flow rate of 40 ml/min. was used as a carrier gas in the instrument (Pye-Unicam 204 series FID detector).

Musk melon crops are grown in the Punjab and Sindh Provinces of Pakistan. New varieties grown in Sindh have been developed by Agricultural Researchers in Pakistan. These new varieties have fleshy fruit, very sweet and resistant to the attack of pests. The seeds of musk melon have medicinal values and are frequently used by people in Pakistan. The seed mainly contain protein and fatty

carried out according to the procedure given by Cocks *et al.* [5].

Key words: Musk melon, Seed oil.

References

1. G.L. Chopra, *Angiosperms. Systematic and Life Cycle*, (Unique Publishers Lahore, 1970), 9th ed.
2. M.Y. Raie, S. Zaka, S. Khan and S.A. Khan, *Fette Seifen Anstrichmittel*, **87**, 324 (1985).
3. Pak. j. sci. ind. res., **28**, 105 (1985).
4. F.D. Gunstone, *An Introduction to the Chemistry and Biochemistry of Fatty Acids and their Glycerides* (Chapman and Hall Ltd., 11 New Fetter Lane, 1967), 2nd ed.
5. L.V. Cocks and C. Van-Rede, *Laboratory Handbook for Oil and Fat Analysis* (Academic Press, London and New York, 1966).