SHORT COMMUNICATION

Characteristics of Date Pit Oil

ABSTRACT

Date pit oils of three Iranian varieties of dates were examined for their fatty acid composition and some of their characteristics. The properties and compositions of the pit oils did not differ significantly from each other or from previously published literature values.

INTRODUCTION

To establish characteristics of pit oils of Iranian date varieties and to find out if they agree with those generally reported in the literature (1,2) for varieties of other origins, samples of three important Iranian varieties were examined for fatty acid composition, as well as for mp, iodine value, and refractive index of their pit oil.

MATERIALS AND METHODS

Date samples of the three Iranian varieties, Kabkaab, Musaafti, and Sayir, were obtained randomly from the market, and their pits were dried and ground in a mill. The oil was extracted from ground pit with petroleum ether in a Soxhlet apparatus for 24 hr.

For determination of mp a thermometer was bound to a capillary tube containing the oil sample, placed in a beaker filled with water, kept in the refrigerator for 24 hr, and then measured in the usual way.

Iodine value (Hanus) was determined according to the method of the Association of Official Analytical Chemists (AOAC) (3). Refractive index was measured by a Zeiss-Abbe refractometer. Fatty acid methyl esters were prepared by the direct method of the AOAC (4). The gas liquid chromatographic (GLC) analysis was carried out on a 4 mm inside diameter 2 m copper column packed with 20% diethyleneglycol succinate on Chromosorb W acid washed 60-80 mesh. Temperatures used were 190 C for column and 200 C for detector and inlet ovens. Flow rates were 15 ml/m N_2 as carrier gas and 35 ml/m H_2 with 350 ml/m air. Prior to GLC analysis of the samples, standard mixtures of fatty acid methyl esters were analyzed under the above mentioned conditions, and the retention times of the constituents were used for identification of fatty acids.

RESULTS AND DISCUSSION

Oil contents, mp, iodine values, and refractive indices were only slightly different in the three varieties (Table I) and showed little differences from those reported in the literature (1,2). The differences in fatty acid composition between varieties (Table I) were low and consequently insignificant. The results obtained for the Iranian varieties did not differ considerably from those reported by other workers (1), except for two more components with retention times similar to arachidic and linolenic acids.

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REFERENCES

1. Dowson, V.H.W., and A. Aten, "Dates–Handling, Processing, and Packing," Food and Agricultural Organization, United Nations, Rome, Italy, 1962, p. 316.
2. Eckey, E.W., "Vegetable Fats and Oils," Reinhold Publishing Corp., New York, N.Y., 1954, p. 364.
3. Association of Official Analytical Chemists, "Official Methods of Analysis," Eleventh Edition, Association of Official Analytical Chemists, Washington, D.C., 1970, Method 28.019.
4. Association of Official Analytical Chemists, Ibid., Tenth Edition, Method 26.052(a).

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TABLE I

Fat Characteristics and Fatty Acid Composition of Date Pit Oil

Variety	Oil content (%)	mp (C)	Iodine value	n_D^{40}	Fatty acid composition (wt %)									
					$C_{8:0}$	$C_{10:0}$	$C_{12:0}$	$C_{14:0}$	$C_{16:0}$	$C_{18:0}$	$C_{20:0}$	$C_{18:1}$	$C_{18:2}$	$C_{18:3}$
Musaafti	8.5	15.5	49.7	1.4559	0.5	0.6	20.1	12.6	11.4	0.9	0.7	45.7	6.8	0.7
Kabkaab	5.0	17.0	51.2	1.4568	0.6	0.6	22.4	12.3	10.1	1.3	0.7	44.2	7.2	0.7
Sayir	6.9	19.5	52.2	1.4573	0.7	0.5	21.5	14.6	9.9	1.2	0.8	43.5	6.6	0.7