

SHORT COMMUNICATIONS

Processing and Analysis of Onionseed (*Allium cepa*) and its Fixed Oil

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The characteristics of onionseed (*Allium cepa*) and its fixed oil are reported. The component fatty acids of the oil by GLC are: palmitic, 7.2%; stearic, 1.2%; oleic, 33.5% and linoleic, 58.1%. The oil was refined and bleached to a light color.

Onion, *Allium cepa* Linn belongs to the Liliaceae family. It is an ubiquitous vegetable, grown extensively all over India both as a field and as a garden crop. Onions generally are propagated by sowing onionseed. Therefore, considerable quantities of onionseed are produced and preserved for sowing purposes.

The seeds do not remain viable for more than one season. In times of continued droughts, large quantities of unsown seed would be available for processing. This paper presents research on the processing of onionseed, recovery of oil, and its refinability and edibility. As the compositional data on Indian onionseed oil are not available, its fatty acid composition according to the latest analytical techniques is also presented.

MATERIALS AND METHODS

A consignment of onionseed was procured from the local market.

The oil content of the seed was determined by extraction of ground seed with petroleum ether in a Butt-type extractor. Other characteristics of the seed oil were analyzed by AOCS methods (1). Refining and bleaching of oil were carried out, adopting the conditions recommended for peanut oil in AOCS methods. Gas chromatographic analysis of oil was carried out on methyl esters on a CIC (Baroda) chromatograph with flame ionization detector and SS column packed with diethylene glycol succinate on chromosorb.

Seeds were humidified to a moisture content of 15% and kept aside for 20 min. The moist seeds were flaked by passing through a single pair of smooth flaking rolls. The flaked seed was cooked and crushed in a Rosedown "Max-oil" expeller. The oil obtained was filtered in a filter press.

The expeller-pressed oil was alkali-refined by 16° Be caustic with known excess and bleached with activated earth (Tonsil AC) and activated carbon at 2 and 0.2% levels, respectively. Data on the characteristics of seed, oils and fatty acid composition of the oils are given in Table 1.

RESULTS AND DISCUSSION

The present sample of onionseed showed higher oil content (22.7%) than those reported in the literature (2,3). On screw pressing, the seed gave an oil yield of 11.3%. Expeller-pressed oil was easily refined and bleached to a light color. The refined onionseed oil was bland and of

TABLE 1

Characteristics of Onionseed (*A. cepa*) Oil and Fatty Acid Composition

A. Seed	
Weight of 100 seeds, g	0.35
Moisture, %	7.0
Oil, %	22.7
Protein, %	27.1
Crude fiber, %	16.1
Ash, %	5.4
B. Oil	
Specific gravity 30°/30°	0.9194
Refractive index n_d 40°	1.4682
Free fatty acid (as oleic), %	1.5
Saponification value	189
Iodine value (Wijs)	124
Unsaponifiable matter, %	1.4
C. Fatty acid composition (GLC)	
	% by weight
Palmitic	7.2
Stearic	1.2
Oleic	33.5
Linoleic	58.1
Myristic, arachidic acids in traces	Less than 0.5%

the edible type. Bengal gram (*Cicer arietinum* Linn) flour slurry lumps (called Bajji) and potato chips deep-fried in refined onionseed oil and the same products from peanut oil (control) were comparable for their edibility according to a cross section of tasters.

The fatty acid composition of onionseed oil now reported shows that the oil has a higher linoleic acid (58.1%) than the earlier *A. cepa* oil (2) and somewhat lower than *A. porrum* (3).

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