

USE OF EVERS' MODIFIED BELLIER'S TEST FOR DETERMINING PERCENTAGE OF ADULTERATION OF SESAME OIL WITH GROUNDNUT OIL

SESAME (til or gingelly) oil is used as principal edible oil in Gujarat and Thana District and groundnut oil is a common adulterant of this oil. After the introduction of The Bombay Prevention of Adulteration Act, we had to experience a great difficulty in ascertaining the percentage of adulteration of sesame oil with groundnut oil. Unless the proportion of adulteration with groundnut oil is determined in sesame oil samples, the Court of Law does not accept the validity of the certificate, the reason being that the Text of Certificate as laid down in the Act, requires that the percentage of foreign ingredient in a particular article of food must be stated in the Certificate and hence the certificate stating only the fact that "the oil sample is not genuine" is liable to be rejected by the Court and this has happened in some cases under this Act. This led us to apply Evers' modified Bellier's Test (for ascertaining percentage proportion of groundnut oil adulteration in olive oil) to ascertain proportion of groundnut oil adulteration in sesame oil. This test is very convenient and reliable for routine work if turbidity temperatures are carefully observed. We carried out a series of experiments by taking a number of samples of pure sesame oil and mixing them with pure groundnut oil in definite percentages and determined the turbidity temperatures corresponding to the different percentages of groundnut oil present in sesame oil. The experimental procedure is the same as outlined in Evers' modified Bellier's test (*vide Tech. Handbook of Oils, Fats and Waxes*, Vol. II, p. 140,—Fryer & Weston, 1920). The following are the comparative results of turbidity temperatures recorded by Evers with respect to percentage of groundnut oil present in olive oil and those recorded by us with respect to the percentage of groundnut oil present in sesame oil.

Approximate percentage of Groundnut Oil present corresponding to Temperatures of Turbidity (Evers)

OIL	Turbidity Temp.
Olive	11.8-14.3°C.
+Groundnut 5%	15.9-17°C.
" " 10%	19.8
" " 20%	25.7
" " 30%	29.2
" " 40%	31.5
" " 50%	33.8
" " 60%	35.3
" " 70%	36.6
" " 80%	38.0
" " 90%	39.3
Arachis	40.0-40.8

Percentage of Groundnut Oil present corresponding to Temperatures of Turbidity (our results)

OIL	Turbidity Temp.
Sesame	15.0 - 16.0
+Groundnut 5%	17.5
" " 10%	19.5
" " 20%	22.0
" " 30%	24.5
" " 40%	27.5
" " 50%	30.5
" " 60%	32.5
" " 70%	34.5
" " 80%	35.5
" " 90%	37.0
Arachis	38.0 - 38.5

The chart of the above results if plotted enables the analyst to determine the percentage of adulteration with groundnut oil in sesame oil very accurately. The turbidity temperature of groundnut oil (obtained by ether extraction) is 38°·0-38°·5 C. The above variations in the turbidity temperatures may be due to variations in the composition of different fatty acid glycerides in oils of different climatic regions. The test is useful only when groundnut oil is the only adulterant in sesame oil. As regards other oils further work is under progress.

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INVESTIGATION OF NEW PLANT-LARVICIDES WITH SPECIAL REFERENCE TO SPILANTHES ACMEILLA

MALARIA-CONTROL in India as elsewhere consists essentially in the elimination of the malaria-carrier anopheline mosquito, which is achieved with comparatively more ease and success by destroying it in its larval stage with the use of larvicides. The only effective mosquito-larvicidal plant, apart from synthetic larvicides, known and used upto now is *Crysanthemum cinerarifolium*, popularly known as pyrethrum. We undertook to investigate the mosquito-larvicidal properties of some select plants which are popularly known to possess some insecticidal properties.

To start with, water and alcoholic extracts of the different parts of the plants were tried to see their effect on anopheline larvæ. If promising results were obtained, the plant was subjected to a detailed examination. The following plants were investigated:—

- (1) Berries of *Duranta plumieri* (N.O. Verbenaceæ).
- (2) Leaves and stems of *Ipomœa muricata* (N.O. Convolvulaceæ).
- (3) Stems of *Berberis aristata* (N.O. Berberidaceæ).