

DETERMINATION OF FAT ACIDS IN OILS.

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NEARLY all vegetable oils are subject, more or less, to fermentation, and the fermentative action causes fat acids to separate from glycerine with the formation of free acidity. When the oil is used for soap-making or wool-cleaning the presence of the fat acids has little or no deleterious effect ; but when used for machinery the case is different, as they act on the metal bearings in a similar manner to mineral acids, although less violently.

The process used for the estimation of fat acids is that of Burstyn, and is based on the property possessed by strong alcohol of dissolving the fat acids, while neutral fats are not perceptibly soluble.

The process is carried out by shaking up 100 grammes of the oil with 100 grammes of 90 per cent. alcohol. The alcohol separates from the oil, carrying with it the fat acids. By means of a separating funnel the alcohol layer can easily be removed and 20 c.c., titrated with normal alkali.

The acid obtained corresponds to sulphuric acid; this, multiplied by 5, will give the total quantity of acid as oleic acid.

A dispute having arisen about some oil purchased by a house in Lille, the author was led to examine Burstyn's process.

A portion of the alcoholic solution, equal to about 20 c.c., was evaporated, and dried at a temperature of 100° C. to 105° C., until the weight became constant. The following oils were tested :—

			Burstyn's Process.		By Weight.
Sweet almond oil	..	..	·37	..	·28
Pure olive	..	..	·514	..	·600
Acid olive	..	..	6·83	..	6·
" "	..	..	9·23	..	10·15
" "	..	..	12·70	..	13·
French rape seed oil	..	..	·85 to ·90	..	·65 to ·90
Bombay "	..	..	·75	..	·25
Dunkirk codfish	..	..	·677	..	·422

The process of Burstyn may, therefore, be considered to give satisfactory results, although it is clear that alcohol dissolves volatile acids, which are lost by evaporation, and also colouring matters, which have no action upon an alkaline solution. Volatile substances tend to give gravimetric results lower than those by Burstyn's process, while colouring and odorous substances give higher results, as they have no action on standard alkali.

In titrating, the author has found that turmeric gives more satisfactory results than either litmus or phenolphthalein.—*Mon Scientifique*, 3 xiv., 205.