Short Communication

Characteristics of Uruguayan Beef Tallow[1]

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ABSTRACT

The characteristics of Uruguayan commercial beef tallow are described. The mean values of some properties and their variation limits are summarized. Uruguayan beef tallow differs from those that have been described in other countries.

The composition of beef tallow is affected by many factors, but the main causes for variation are related to the nutrition of the animals and to its production with differing proportions of the fatty tissues of the animals (1–5). This has resulted in descriptions of different characteristics and fatty acid compositions for beef tallows originating from various geographical locations. Thus, South American tallows have been described as harder and as having lower iodine numbers than those from North America. This is attributed to the South American animals being range-raised, whereas those in North America are grain-fed. However, there seem to be no consistent differences among the products from the United States, Australia, South America and New Zealand (5).

Uruguay is basically a cattle-producing country, and the animals are range-fed for the most part. Locally, tallow is produced from the total fatty tissues of the animal.

Fifty samples of Uruguayan beef tallow available in the local market were analyzed for their fatty acid composition (Table I) and for other properties (Table II). The statistical distribution of the titer was studied in 118 samples and is shown in Figure 1.

The *cis-trans* isomerism of the unsaturated fatty acids present was analyzed by gas chromatography on OV-275 15% (6), and it was found that an average of 30% of the palmitoleic acid is *trans;* 25–35% of the oleic acid is *trans;* linoleic acid is 25% on average as *trans-trans*, and the *cis-trans* and *trans-cis* are present as traces (1, 2, 5).

The comparison of our results with those described in the literature (2, 5, 7–10) shows that Uruguayan tallow contains a higher percentage of stearic acid and a lower percentage of palmitic and oleic acids. The titer for Uruguayan tallow tends to be higher than the average.

TABLE I

Fatty Acid Composition of Uruguayan Beef Tallow

Fatty acid[a]	Mean value (%)	Minimum value (%)	Maximum value (%)
12:0	traces	–	–
13:1	traces	–	–
14:0	2.7	2.0	4.1
14:1	traces	–	–
15:0	≤1.1	–	–
16:0	24.0	20.2	27.3
16:1	3.0	1.4	4.9
17:0	2.0	1.0	3.3
18:0	28.2	25.2	33.6
18:1	34.8	31.0	43.1
18:2	1.8	0.8	4.4
19:0	traces	–	–
20:0	≤0.7	–	–
20:1	≤0.9	–	–
21:0	≤0.9	–	–

[a]Determined by gas liquid chromatography as their methyl esters on SP-2330 10%.

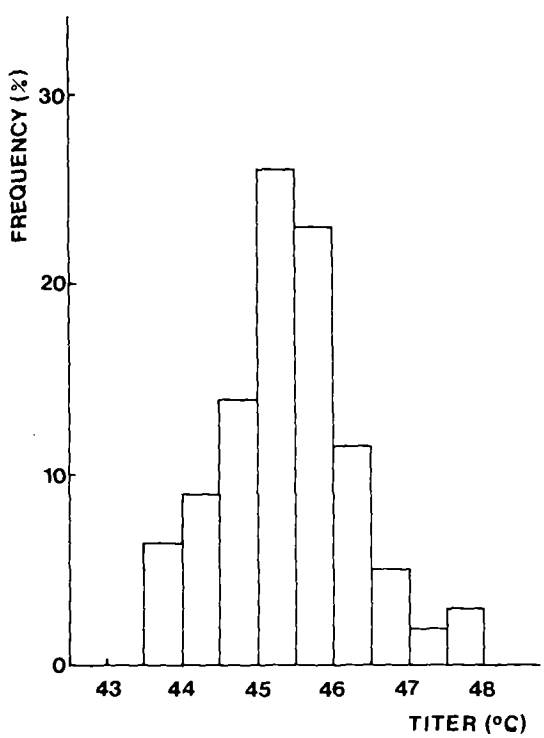

FIG. 1. Statistical distribution of the titer.

[1]Based on results presented as partial requirement for the Doctoral Thesis of M.A. Grompone.

TABLE II

Some Properties of Uruguayan Beef Tallow

Property	Mean value	Minimum value	Maximum value
Titer (C)[a]	45.4	43.2	47.8
Iodine value (Hanus)	43	38	49
Acid value (fatty acids) (mg KOH/g)	203.4	201.4	205.3
Stearic %/palmitic % ratio	1.18	0.98	1.62
Stearic %/oleic % ratio	0.81	0.59	1.08

[a]Titers have been determined in 118 samples.

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