

More Food Uses for Animal Fats Promised

A fat with the properties of more expensive imported fats used in confections is one of the potential products made possible by the fractionation of tallow, USDA scientists reported.

Tallow (beef fat) has been separated by this process into three fractions which at room temperature are hard solid (15 per cent), plastic solid (20 per cent), and liquid (65 per cent).

The plastic solid fraction is compatible with cocoa butter, and has one of this imported fat's most valuable properties—it remains solid at room temperature but melts at body temperature. Candy coatings made with such a fat melt in the mouth without leaving a waxy sensation. It also shrinks when molded, another advantage in candymaking.

A paper describing the tallow fractionation and suggesting

potential uses for the three fractions was presented before a joint meeting of the American Oil Chemists' Society and the Japan Oil Chemists' Society. The paper was prepared by F.E. Luddy, J. W. Hampson, S.F. Herb, and Dr. H. L. Rothbart, research chemists at the Eastern marketing and nutrition research laboratory of USDA's Agricultural Research Service (ARS) in Philadelphia.

Experiments are now underway to explore the utility of the other two fractions of tallow produced by this process, the liquid and hard solid fractions. The liquid fraction has properties that suggest its application as a salad or cooking oil. There is also the possibility that the solid and liquid fractions might be blended together (or that the solid fraction might be blended with another oil) to make plastic shortenings or margarine-like

products. Such products could be useful for specialty food uses, where particular physicochemical properties could be provided as required by controlling the proportions of each fraction used.

Laboratory-scale fractionations lead ARS chemists to believe that the process could be carried out economically on a large scale. Commercial fractionation of tallow could have important economic implications for the livestock industry.

Between five and six billion pounds of beef fat are produced annually in the U.S. Most of this is potentially edible, but only about a tenth of it now goes into edible products, mainly shortenings and spreads. The rest is diverted to "inedible" tallow markets, and about half of this is exported.

By opening up new markets for edible tallow, this process could improve the livestock industry's return on this byproduct. Furthermore, specialty fats derived from tallow as a result of fractionation should command a higher price than even today's edible tallow.

Work is now in process to improve the tallow-fractionation process. In the meantime, the products of the fractionation are being evaluated for further commercial exploitation.

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