• *Problem Corner*

Question October 31, 1959

Could you please give me an answer to the following question? Or advise where I should go for the answer?

What is "palm oil" as the term is used in food processing?

Specifically, we see in various places what appears to be two sources of palm oil. For instance, in Hilditch's "The Chemical Constitution of Natural Fats," third edition, page 163, there are listed "Fruit-Coat Fat" and "Seed Fat" of oils from different palms. The chemical difference between the two kinds of oil is great because of the important ingredient, linoleic acid. The nutritional value of commercial "palm oil" would, of course, depend upon whether it comes from "fruit-coat" or "kernel."

Just now I am corresponding with some food people who operate in the far east. When they say *palm oil*, what do they mean?

Would greatly appreciate your help.

FROM ILLINOIS

Answer

In response to your request for information concerning palm oil as the term is used in food processing, one of our authorities believes that there is no doubt that the palm oil which is wanted for food purposes is the "Fruit-Coat" oil. We think that is what your correspondents mean, otherwise they would call it palm kernel oil.

We hope this helps.

TECHNICAL CORRESPONDENT

Question November 18, 1959

Would you be so kind as to tell us if you have some information about the extraction of waxes from alfa grass dusts.

FROM FRANCE

Answer

We have had no experience in a practical or research manner in the extraction of the waxes from alfa or esparto grass and can only pass on to you information which is found in the literature. In this connection you may be referred to a monograph entitled "The Chemistry and Technology of Waxes," by A. H. Warth, published in 1956 by the Reinhold Publishing Company, New York, N. Y.

According to the above reference, the wax was recovered commercially from esparto or alfa grass by Tullie and Russell Company Ltd. in 1909-1910 under a process patented by Cross and Russell, British Patent 8268 (1908).

In the processing of the grass for fiber purposes in the manufacture of paper, the broken grass and fine dust are separated by means of a fan and accumulated in a closed shed. This waste is passed through two cyclone separators, one of which collects the fine dust. The fine dust, as separated, is extracted by percolation with petrolic ether, using a Soxhlet-type of extraction.

The wax is recovered from the miscella by evaporation of the solvent.

The Russell plant is reported to be the sole commercial source of alfa wax. The yield of the fine dust is from 5 to 7 lbs. per ton of the grass. The dust contains 30-40% of wax reported, a yield of about 3 lbs. of wax per ton of grass.

It should be obvious that the wax is not soluble in all proportions in petrolic ether and that other solvents might be used. However the normal solvents for dissolving wax, such as ethanol, would extract other materials in undesirable quantities, such as sugars and some proteins.

TECHNICAL CORRESPONDENT

Question September 23, 1959

As you know, the green oils extracted by means of a solvent (carbon disulphide or benzine) are sold either according to their chemical characteristics, such as acidity petroleum ether impurities, oxyacids, humidity, etc., or stating these characteristics and the designation "prime green oil" in the case of oils showing a real green colour.

This designation of "prime green oil" is however rather empirical and so it may give rise to divergences of opinions between the purchaser and the seller.

According to what has been done with other oils which are sold after a chromatic scale, as Lovibond scale, iodine colour, Gardner scale, etc., it is of great interest to try and show the "prime green" designation in any scale either regarding the very oil or an oil solution in organic solvents.

We do not know if this has already been done. However we thought it advisable to ask for your advice as a well-specialized firm in the oil industry and aware of all technical knowledge regarding it.

FROM PORTUGAL

Answer

The only instance I know of in this country where green color is important and enters into trading specifications is in the case of soybean oil. There are green color standards for crude soybean oil, and the oil is graded accordingly, depending upon the extent of the green color. The price, of course, varies accordingly.

I'm attaching three excerpts from the trading rules of the National Soybean Processors Association. These are only to indicate to you how the green standards are applied, how they are prepared, and how they are used.

A more sensible idea, I think, is to determine the chlorophyll content, and this can be done since there is now a method for this purpose. I am enclosing a copy of this method. It would, of course, be necessary to set standards based on chlorophyll content and to do this you'd have to have some data showing the average and normal range of chlorophyll content encountered throughout the season with oils of various degrees of quality.

I hope this information may be of some help to you. If you need anything further, do not hesitate to communicate with me again.

V. C. MEHLENBACHER, Swift and Company, Chicago 9, Ill.

The A. O. Smith Corporation of Milwaukee, Wis., will build an advanced research center at Middleton, Wis., at an estimated cost of $3,000,000.