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LIGHT COLORED MIXTURE OF VEGETABLE PHOSPHATIDES AND FATTY OIL

No Drawing. Application filed May 6, 1931, Serial No. 535,553, and in Germany October 21, 1929.

My invention relates to light colored mixtures of vegetable phosphatides and fatty oils and to methods of making the same.

In the recovery of the vegetable phosphatides (including lecithin) which are contained in soya beans these phosphatides are dissolved together with the oil (in an oil solvent) during the extraction and are afterwards separated therefrom, for example by passing exhaust steam into the oil after the solvent used for extraction has been evaporated. This yields a vegetable lecithin which after centrifuging out the main quantity of oil, still contains 30–40% oil, which cannot be separated by mechanical means from the phosphatides. For many purposes, especially those in which the vegetable lecithin is used together with oils or fats, e. g. in the manufacture of some grades of margarine, chocolate, confectionery, and in the textile industry, etc., the oil content is not a disturbing factor and in fact is even desirable because the phosphatides thereby acquire or retain a more pliable consistency and become much more stable, that is, they do not decompose so rapidly when heated. The dark color of the crude soya oil contained in the phosphatides (in some cases) is disadvantageous, because it may color the product treated therewith.

In order to improve this color, it has already been proposed that the mixture consisting of oil and lecithin should be repeatedly washed out with refined oil of the same oil-bearing fruit, that is for example, soya bean oil, so that the dark oil originally present is replaced by purified clear oil.

This is rather an awkward and costly process. Furthermore it is not always expedient to add soya bean oil to the soya lecithin, in place of the original soya oil, as this soya bean oil even when refined still has a certain natural color of its own and for many purposes has deleterious properties, because it belongs to the semi-dry oils. Therefore its complete removal would frequently be desirable. It is much more advantageous to use for this purpose an oil which by nature is white or almost colorless.

In accordance with the present invention, I have succeeded in obtaining light-colored mixtures of vegetable phosphatides with fatty oils in a substantially simpler way. By "fatty oils" are meant those which are solid or fluid at ordinary room temperature, as well as oils hardened by hydrogenation (which also may be lighter in color, and less subject to oxidation or rancidification than the original oil).

In order to carry out my invention, the lecithin obtained in well known manner by extraction from the soya beans is first removed mechanically from the main quantity of the entrained oil by centrifuging. The water contained in the residue, which consists of vegetable lecithin with 30 to 40% of oil is expelled by distillation under vacuum. After this preliminary treatment, the mixture is dissolved in a solvent in which fats and oils are soluble, but lecithin not soluble at room temperature, e. g. acetone or acetic esters (ethyl acetate or ethyl acetate). Preferably the operation is carried out under heat, whereupon the solution is allowed to cool and the vegetable lecithin separates out quite well. As far as possible the sediment (i. e. the lecithin) is separated from the liquid and mixed with a suitable refined fluid or solid oil or fat or pure refined hydrogenated oil, e. g. refined peanut oil, coconut oil, palm oil, cocoa butter, sesame (gingili) oil, hydrogenated peanut, hydrogenated sesame oil, etc. Moreover refined soya bean oil, also hydrogenated, may be used if the application of another oil is not desired. Then (i. e. after mixing with the oil) the residue of the solvent still present in the mixture of vegetable phosphatides and oil, that is the residual acetone or acetic ester, are expelled by heating under vacuum. The chief thing is that the oil is first added before the acetic ester or acetone is completely removed, because the vegetable lecithin freed from oil otherwise does not uniformly mix after being subjected to the temperatures used during distillation.

The process may for example be carried out as follows:

The lecithin or the phosphatides (containing soya bean oil, say 30 to 40%) are treated with a five fold quantity of acetone or acetic

ester at ordinary temperature. Then the mass is cooled down to about −5 deg. C., whereupon the lecithin easily settles. The sediment consisting of vegetable lecithin is separated from the liquid and uniformly mixed with 30% refined peanut oil or coconut oil or cocoa butter or the like, and thereafter the acetone or acetic ester still in the mixture, is expelled by distilling under reduced air pressure. It is not desired to limit the amount of such oil to 30%. In this case it will be seen that the amount of such oil is less than the amount of such lecithin, and obviously for forming a concentrate I use such proportions as to form a mixture in which the amount of lecithin in the mixture is many times more than the amount which would ordinarily be used in final products (e. g. foods, etc.) in which it is customary to use lecithin amounting to only a very minor percentage, (often a fraction of one per cent) of the entire mixture. For example it is common in margarine, to use a few tenths of a per cent of added lecithin.

I claim:

1. Method of making light colored mixtures of vegetable phosphatides and fatty oil, comprising mechanically freeing soya lecithin from the main quantity of the original oil contained therein, treating the soya lecithin with a solvent which will dissolve the oil still present but in the cold does not dissolve the lecithin, separating the lecithin, mixing it with refined oil and thereafter removing the rest of the solvent present in the mixture by distilling under vacuum.

2. Method of making light colored mixtures of vegetable phosphatides and fatty oil, comprising mechanically freeing soya lecithin from the main quantity of the oil contained therein, treating the soya lecithin with acetone, separating the lecithin, mixing it with a refined oil and thereafter removing the rest of the solvent present in the mixture by distilling under vacuum.

3. Method of producing light colored mixtures of vegetable phosphatides and fatty oil, comprising mechanically freeing soya lecithin from the main quantity of the oil contained therein, treating the soya lecithin with acetic ester, separating the lecithin, thereafter mixing it with a refined edible fatty oil and thereafter removing the rest of the solvent present in the mixture by distilling under vacuum.

In testimony whereof I affix my signature.

BRUNO REWALD.

CERTIFICATE OF CORRECTION.

Patent No. 1,895,424. January 24, 1933

BRUNO REWALD.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 71, for the word "ethyl" first occurrence, read methyl; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of May, A. D. 1936.

Leslie Frazer

(Seal) Acting Commissioner of Patents.