

ALIEN PROPERTY CUSTODIAN

PROCESS FOR THE PURIFICATION OF PHOSPHATIDES

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The present invention relates to a process for purification of phosphatides separated from vegetable oils.

The raw phosphatide that may be gained from vegetable oils by precipitation with suitable quantities of water, maybe with chemicals added, consists of an emulsified more or less paste-like mass containing, besides phosphatide and water and possibly chemicals also oil and impurities the removal of which is necessary for using the phosphatide, and which oil and impurities cannot be separated by treatment in a centrifugal, nor by other mechanical methods, but require the addition of chemical means, in order to be removed.

In order to purify such raw phosphatide, it has therefore been proposed partly to extract with oil-dissolving agents and partly to wash with such substances as ethyl alcohol, methyl alcohol, acetone and the like, i.e. with cleaning agents that are more or less soluble in oil as well as in water, and when added in suitable large quantities, will precipitate the phosphatides, which then are cleaned more thoroughly by a repeated treatment with the cleaning agent.

These purifying methods, however, require the use of relatively large quantities of the purifying agents concerned, frequently several times the quantity by weight of the phosphatide, for which reason the processes become complicated and expensive, while for economical reasons a recuperation of the cleaning agent is required. In the Danish Patent No. 52738 a method is described according to which, besides large quantities of alcohol, also considerable quantities of water are added, especially with the simultaneous use of various acids and salts. In this case the quantities to be treated will be especially large per se, and the process becomes complicated, in that the mixture divides itself into three layers of which the one mainly contains phosphatides, another one oil, while a third one contains phosphatides in such a quantity that it has to be treated again, in order that the contents of phosphatides may be gained. These methods are further lengthy and involve a danger of the easily decomposable phosphatide becoming destructed.

Experience has now shown that after the addition of relatively small quantities of one or more of the said cleaning agents, such as alcohols and ketones that are more or less soluble in water as well as in oil, precipitated watery raw phosphatides may be caused to melt, maybe after being heated.

The fused mass may be separated, either by being left alone or by being treated at a suitable

temperature in a centrifugal, and gives then only two layers:

1. An oil-containing layer containing a small part of the added cleaning agent and being more or less coloured and mixed with the impurities desired to be removed,

2. A liquid purified layer of phosphatides containing practically all the pure phosphatides present in the raw phosphatides.

The quantity of cleaning agent to be added, in order to cause the watery phosphatide mass to pass into a liquid state must be adjusted according to the nature and conditions of manufacture of the raw phosphatide, and may vary from 1 to 33% of the cleaning agent, figured relatively to the contents of raw phosphatide. If too little of the cleaning agent be used, no useful separation will be effected, and if more than the optimum quantity of the agent be used, a coagulation will take place, and after the mixture has been left alone or has been treated in a centrifugal, the result will be an incomplete purification and a separation into three layers:

At the top: an oil-containing layer,
Midways: water, plus cleaning agent plus a small quantity of phosphatide,

At the bottom: an imperfectly purified mass of phosphatide.

The layer of phosphatide (layer 2) purified according to the present process may either be dried as it is, or it may be further cleaned by being mixed with oils or fatty substances, and owing to the presence of the cleaning agent, the oil and fat may again be separated together with the absorbed impurities by being left alone or by being treated in a centrifugal, maybe under heating.

This combination of the cleaning agent and oil causes the added oil to absorb especially colouring substances, fatty acids, tasting substances and other impurities from the phosphatides and further the quantity of phosphatide may be practically completely gained.

Example 1

To the ground-nut raw phosphatide, separated from raw ground-nut oil by means of water and containing about 40% of pure phosphatide, about 10% of ethyl alcohol is added, and is mixed while heating to 60 to 70°C causing the mass to melt, after which it is separated, by being left alone or by treatment in a centrifugal, into:

1. A lighter oil-containing layer containing impurities and a small quantity of alcohol and

2. A heavier liquid layer consisting of purified phosphatide, some water and the main part of the alcohol added.

After the separation, this layer is mixed with 33% of refined vegetable oil, and the mixture is heated to from 60 to 70° C., after which it is separated by being left alone or by treatment in a centrifugal into:

1. An oil-containing layer in which the impurities and a small quantity of alcohol have been absorbed, and

5 2. A liquid layer containing, besides water and alcohol, also a more thoroughly purified phosphatide.

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