

# ALIEN PROPERTY CUSTODIAN

## PRODUCING A PULVEROUS SUBSTITUTE FOR THE WHITE OF AN EGG

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The present invention relates to a method of producing a pulverous substitute for the white of an egg and of making baked goods using this substitute.

As is well known all attempts to replace the expensive white of a hen's egg or the whole egg by albumens prepared from plants, fish, milk or the like have lead to incomplete results only, because no other albumen is equal to that of an egg as far as the formation of froth and the ability of coagulating are concerned so that under the conditions of baking not as voluminous and stiff or stable products could be obtained as with the use of the pure white of a hen's egg or of the whole egg respectively.

Better results could be obtained by the use of a product obtained from the blood of animals to be killed to which salts preventing the deflocculation of fibrin were added, the blood corpuscles so treated were removed by centrifugal action, the fibrin then was precipitated and the blood serum freed from fibrin was evaporated. The precipitation of the fibrin was effected either by heating to a temperature of 56° C or by the addition of calcium salts.

It has been observed that a fresh blood plasma containing the total amount of fibrin, resulted in too heavy and too tough a dough if used as egg substitute. To obviate this drawback the fibrin was totally or partially removed or certain amounts of a blood serum treated with alkali were added to the fibrin later on.

Now, it has been found, that a solid product very well adapted as substitute for egg albumen may be obtained by adding to the blood in a manner known per se salts preventing the deflocculation of fibrin, separating the blood corpuscles by centrifugal action, finely spraying the total blood plasma containing the salts in towers or chambers respectively by means of nozzles or rotating discs, and finally drying said blood plasma with the aid of hot air. This spraying and drying in the presence of the salts preventing the deflocculation of fibrin, i.e. in particular sodium phosphate in mixture with certain quantities of common salt or sodium citrate, results in so influencing the physical state of the fibrin that baked goods, prepared from the dry powder mixed with water, flour, sugar and so on are of the same lightness and stiffness as would be the case if egg albumen were used.

If for instance the dry powder prepared in accordance with the invention was mixed with water and sugar and beaten in a cold or hot state to a froth nearly the same amount of froth was

obtained as with the use of a corresponding quantity of egg albumen in the form of glair. From this froth bairsers, meringues etc. could be made the appearance and fracture of which were hardly to be differentiated from those prepared of pure egg albumen.

If, however, dried blood serum freed of fibrin was used, the masses flowed away during baking and on breaking a flat piece of baked goods it was found that thorough baking had not been effected and the interior of the mass was browned and tough.

To completely or partially replace the whole egg in the bakery by unaltered blood plasma has not yet been proposed.

In the production of baked goods of flour whole eggs normally are added either to the mixture of fat and sugar stirred to froth, whereupon the eggs are stirred to form a froth and then the flour is added and baked, or sugar and whole eggs are first beaten in a hot or cold state to form a froth, whereupon flour is stirred in and finally fat is added in liquid form. In both cases the whole eggs have a bearing effect upon the remaining constituents of the dough during stirring as well as during baking.

The dry powder prepared from blood plasma and mixed with water has by itself not yet such a bearing effect. In accordance with the invention it is mixed with at least the same quantity of a flour of leguminosae, for instance soy and, moreover, with at least an amount equal to its weight with a so-called cream powder consisting of a powder of maize core, a powder of wheat and potato flour in varying proportions. A suspension of blood plasma prepared from these flour products may replace at least half the whole eggs otherwise used.

The substitute of egg prepared from dried blood plasma according to the invention may also be used for other cooking purposes for which hitherto hen's eggs only could be employed, for instance for covering with and baking in bread-crumbs, for the manufacture of mayonnaises as well as for the manufacture of sausage. Half the amount of the otherwise required whole eggs may be economized.

To obtain the dry product for instance 1000 l. of fresh cattle blood are mixed with a solution of 6 kg of sodium phosphate and 4 kg of common salt in 100 l. of water and the blood corpuscles are separated in a fast running centrifuge. 650 l. of a cream colored liquid are obtained which are led to a fast rotating disc arranged in the interior of the drying tower, are

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very finely sprayed and dried with hot air. The yield amounts to 52 kg of a light powder which is completely soluble in water.

To make baked goods of flour, 250 g of this powder are for instance mixed with 100 g of soy-  
flour, 150 g of bean-flour, 50 g of lupine-flour  
and 400 g of a mixture of maize- and wheat  
powder, potato-flour and grits of wheat, the mix-  
ture is suspended in 4000 g of water and then  
the suspension together with the contents of 100  
eggs are gradually added under stirring to a  
mixture of 10 kg of sugar and 10 kg of fat stirred  
to form a froth. 6 l. of milk are stirred into the  
mass and finally 25 kg of flour and 500 g of bak-

ing powder are added, whereupon the mass is filled into 62 chest-cake forms each adapted to contain 1 kg and baked at moderate heat.

If Vienna masses are to be made the same mixture of the dry product is suspended with leguminose-flour and cream powder in a quantity four times as much as the water and beaten in a hot or cold state to a froth with 100 eggs and 10 kg of sugar, whereupon the froth is treated with flour and powdered flour respectively, mixed with liquid fat and then baked.

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