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3,539,358

DEHYDRATED BLAND PUDDING BASE

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No Drawing. Filed Mar. 1, 1967, Ser. No. 619,554

Int. Cl. A231 1/14

U.S. Cl. 99—139

8 Claims

ABSTRACT OF THE DISCLOSURE

Production of a bland pudding base reconstitutable with a flavored fluid by gelatinizing an aqueous slurry of cross-linked acylated waxy grain starch and sugar, said sugar being in a starch to sugar ratio of about 2:1 to 1:2.

This invention relates to a precooked, dehydrated, essentially bland pudding base suitable for rapid reconstitution with liquids such as fruit juices to produce a thickened, nutritious pudding having the flavor of the liquid and to the method for its preparation. The pudding base, when reconstituted with a fruit juice, is especially suited for use as an infant food.

Many types of reconstitutable flavored pudding bases which are to be rehydrated with milk or water are presently available to the consumer. These flavored products are usually dry blends of pregelatinized starch with substantial quantities of sugar, usually in a weight ratio of at least 5 parts sugar to 1 part pregelatinized starch. This high concentration of sugar is required to serve as a physical dispersing agent during the reconstitution of the pregelatinized starch to produce a smooth-textured, appetizing product having uniform dispersion characteristics.

To date there are no commercially available dehydrated bland (unflavored) pudding bases to which liquids, such as fruit juices, can be added at the discretion of the consumer. With such a product, the consumer would be able to prepare a reconstituted product which displays the flavor of the particular liquid as well as the thickened consistency of the pudding base without sacrificing any of the nutritional value of the liquid as a result of heating and/or dehydration. For example, if orange juice is dehydrated and made a part of the dehydrated pudding mix for reconstitution with plain water, the end product would not have the same fresh orange flavor obtainable with the present bland or neutral base when reconstituted with fresh or fresh frozen orange juice. In addition, the vitamin content of the orange juice is retained with the present product to an extent not possible when a dehydration process is applied to orange juice.

However, when a dehydrated bland pudding base, containing the conventional ratio (5:1) of sugar-to-starch, is mixed with a fruit juice, the combined sugar present in the juice and the pudding base has been found to produce a reconstituted product which is overly sweet and largely unappetizing. Attempts to enhance the taste of such a combined, reconstituted product by decreasing the sugar-to-starch ratio of the dry blended pudding base have proved unsuccessful. The reason for this is that when the amount of uncombined sugar in the preblended pudding base is appreciably decreased below the 5:1 ratio necessary for the uniform dispersion of conventional dry blended compositions, the amount of sugar remaining is insufficient to provide uniform dispersion of the pregelatinized starch during subsequent rehydration. Therefore,

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the resulting reconstituted pudding has been found to be lumpy and generally unattractive to the ultimate consumer.

It has now been found that when certain modified starches are gelatinized while in an aqueous slurry containing sugar in a sugar-to-starch weight ratio of up to 2:1, and thereafter dehydrated, the resulting bland pudding base has dispersion characteristics which are at least equivalent to those obtained in a conventional dry blended composition containing sugar to starch in a weight ratio of 5:1. In a preferred aspect, the invention contemplates the formation of a dehydrated, bland pudding base containing substantially equal amounts of sugar and starch.

The gist of the invention lies in the technique of gelatinizing the starch content of the pudding base in the presence of the limited amount of sugar employed. The sugar-starch combination obtained from the gelatinization of starch in the presence of sugar is believed to cause a chemical reaction or combination between the two materials which promotes the uniform dispersibility and desired reconstitution properties. The precise chemical structure of this new product which may be derived by gelatinizing starch in the presence of sugar has not been ascertained and will be referred to herein as a gelatinized starch-sugar complex. The function of the sugar in the new starch-sugar complex is to be distinguished from the physical function of the high sugar concentration in prior puddings with respect to uniformity of dispersion on reconstitution. In the present situation, the new complex is believed to disperse because of the chemical nature of the starch-sugar reaction product rather than because of any physical phenomenon.

The dehydrated bland sugar/starch-containing product of this invention has been found to be easily and quickly reconstitutable with various types of liquids, and especially fruit juices, merely by hand stirring or shaking to form an attractive, uniformly dispersed, thickened consumer product which possesses the essential vitamins found in the liquid. Thus, when the bland pudding base of this invention is reconstituted with fresh fruit juice such as orange juice, it provides all the nutritional advantages of the fresh juice, yet exhibits the thickened consistency of a pudding.

The preparation of this rapidly reconstitutable bland pudding base is accomplished by first forming an aqueous slurry containing the sugar, preferably granulated white sugar, and a starch, preferably a waxy grain starch, modified as hereinafter set forth. The starch is then gelatinized by heating the slurry either during dehydration or separately. It is preferable to precook the slurry to at least partially gelatinize the starch, such as, for example, as set forth in Gerber U.S. Pat. No. 3,197,312, issued July 27, 1965. Thereafter, the gelatinization is completed while dehydrating the sugar/starch slurry on a heated drying surface such as a drum drier.

In practicing this invention it is advantageous to employ a naturally-occurring grain starch in which the amylopectin molecules of the starch have been modified by cross-linking and acylating. In particular, waxy maize (amioca) starch modified in this way has particular application to this invention. Such a starch is presently available commercially under the trademark W-13 Stabilizer from the American M ziarodPucet.ali o- cm mm Other commercially available modified grain starches have been found to be particularly suitable in the practice of this invention.

The aqueous sugar-starch formulation employed in this invention advantageously includes an effective amount of