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PREPARATION AND USES OF CULTURED CREAM

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Crème d' Isigny, a cultured cream, originated in the Normandy dairies. Its name is derived from the town of Isigny in Normandy, France. A similar product has been made in the United States and is sold under the names: "Jewish Sour Cream," "Sour Cream," "Cultured Cream." Other names might be: "Fromage à la Crème," "Lactic Cream," or "Lacto-creme." It is not known at this time if any of these names have been copyrighted.

Uses of Cultured Cream

This type of sour cream can be used as follows:

1. As a dressing for various fruits and vegetables.
2. As a spread for bread, especially for whole wheat or rye bread.
3. As an addition to prepared cereals.
4. As a dressing for various types of salads.
5. It may be mixed with ground olives, nuts, pimentos or Roquefort cheese to be used as a dressing for salads or as a spread for bread.
6. Sour cream adds savor to baked dishes. It may be used in soup, cakes and cookies, cooked desserts and, in short, with a variety of foods.

Sugar, salt, or other seasoning materials may be sprinkled on or mixed with the cultured cream at the time of consumption to suit the individual taste.

Experiments Made at the Oregon Agricultural Experiment Station

Five methods of preparing the cultured cream were studied. Sweet cream containing 20 per cent fat was used.

Method 1. By using homogenized cream. The cream was pasteurized at a temperature of 185° F. and held for 30 minutes. It was then homogenized at a pressure of 3500 pounds per square inch using a single-stage viscolizer. This high pressure resulted in a product that was exceedingly smooth in texture. After homogenization the cream was cooled to a temperature of 70° F. and was then inoculated with 2 per cent of regular cheese starter. The cream was then incubated at a controlled temperature of 70° F. for a period of 15 hours. At the end of this time a firm coagulum had formed, but no visible whey was noted on the surface of the cream. Without previous stirring, the cream was cooled to a temperature of 35° F., and it was maintained at this temperature until it was used.

With some samples 5 per cent of sugar was added before pasteurization. The resulting product was very satisfactory.

Homogenization was omitted with the following four methods, but the cream was pasteurized, inoculated with starter, incubated and cooled as with Method 1. The following modifications were made.

Method 2. By using dry skim milk. 1 per cent of spray process dry skim milk was added slowly while stirring when the cream was at a temperature of 100° F. before it was pasteurized. The result was fairly satisfactory.

Method 3. By using dry skim milk and rennet. In addition to using 1 per cent spray process dry skim milk, 2 drops of commercial rennet diluted with approximately 10 cc. of water were added to each gallon of cream immediately after the starter had been added.

Method 4. By using rennet only. Ten drops of rennet diluted with 20 cc. water were added to each gallon of cream immediately after the starter was mixed with the cream. (Reduce the amount of rennet if the cream wheys off). The product by this method generally showed too firm a coagulation and wheying off.

Method 5. By using gelatin. No skim milk powder or rennet was used, but 0.25 per cent gelatin was added to the cream. The gelatin was added in the form of a gelatin solution immediately before the addition of starter. The gelatin was mixed with cold water, and heated to 150° F. for liquefying the gelatin. The body of the resulting product was of somewhat sticky consistency.

The cream that had been homogenized had a much smoother texture and was more glistening and attractive than was the cream made by the other methods. The cream made by this method can therefore be recommended.

The homogenized product was examined by a considerable number of persons, in Corvallis, Salem, and Portland. The product, which had a mild, delicate flavor as a result of the activity of the bacteria introduced by the starter had a smooth, thick, and velvety body and was enjoyed by most of those who tasted it. It was observed that the product was generally preferred by men, especially when it was served with other foods and particularly with the acid fruits. The sweetened product had a "smoother" flavor.

Two-quart glass jars were used as containers for the inoculated cream for the preliminary work. Later re-enameled No. 1 tin cans were used. After the cream had been incubated the cans were hermetically sealed under a vacuum of 27 inches of mercury. They were then stored in a refrigerator at a temperature of 35° F.

The starter used contained lactose-fermenting and also citric-acid-fermenting bacteria. The original culture was obtained from Dr. B. W. Hammer, Dairy Bacteriologist of Iowa State College, Ames, Iowa.

When used with fruit the sweetened product was found to be preferable, because it blended more satisfactorily with the fruit.

The sweetened cream tasted very similar to the Crème d'Isigny that he had eaten in France, according to one man who sampled the product.

Method Recommended

As has already been pointed out the use of homogenized cream in the preparation of cultured cream appeared to be the best method to follow. The product had a velvety, smooth, and rich appearance. By using this method it is not necessary to add any thickening material to the cream; however, if a homogenizer or viscolizer is not available, the addition of dry skim milk is recommended.

The cream used should be sweet and should have a fine flavor. A milk culture containing desirable bacteria is absolutely necessary if a fine-quality product is to be obtained.

It is desirable to incubate the cream in the container in which it is to be sold in order that the texture of the finished product will not be disturbed. Paraffin-impregnated, sanitary paper containers may be used. Wide-mouth glass containers, jars, or enameled tin cans are also satisfactory.

Method of Storing

The cultured cream can be kept in a satisfactory condition by placing the containers in a refrigerator maintained at 35° F. and preferably should be consumed within five or seven days after it has been prepared. If the cream is kept longer the acidity may increase and the product will taste too sour for the average person. Furthermore, unless the cream is kept in vacuum-sealed containers, it is likely that mold will grow on the surface. It is desirable that the date of manufacture be printed on the containers.

Defects in Cultured Cream

The defects that may develop in cultured cream are:

1. Sharp acid taste. Caused by using an overripe starter, adding too much starter, and using an excessively high temperature for incubation.
2. Bitter taste. Caused by the development in the cream during incubation and storage of bacteria that produce a bitter taste. To prevent the defect use cream of high quality, see that the cream is properly pasteurized and cooled, avoid contamination of the pasteurized, cooled cream, and use a starter that contains the desirable types of bacteria.
3. Cheesy flavor. Caused by the growth in the cream of undesirable bacteria. Efficient pasteurization, avoiding contamination of the pasteurized cream with undesirable bacteria, and using a high quality starter are necessary to avoid cheesy flavor.
4. Metallic flavor. Caused by exposing the cultured cream to rusty, or poorly tinned containers. Use glass, stainless steel or paraffin-impregnated paper containers for the cultured cream.
5. Flat flavor. This is caused by the slow growth of the lactic acid bacteria in the cream and insufficient production of acid. The use of a starter containing desirable bacteria in an actively growing form is necessary in order to avoid flat flavor.

Healthfulness of Cultured Cream

The cultured cream not only contains all of the constituents of pasteurized milk but on account of the higher fat content and slightly lower milk-solids-not-fat content the cream should be particularly beneficial in the nutrition of persons who are underweight and who would benefit by the additional amount of fat as well as an increased amount of vitamin A. The cultured cream contains five times the amount of fat and vitamin A of average milk.

When persons have difficulty in digesting sweet milk or sweet cream but are able to satisfactorily digest sour milk or sour cream products, they may find cultured cream a satisfactory part of the diet. Certain stomach ailments and also constipation may be partly relieved or overcome by the use of sour milk or sour cream products. For certain types of disorders milk cultures of *Lactobacillus acidophilus* are of the most value.

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