

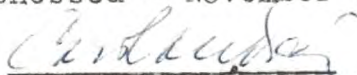
THERAPEUTIC DAIRY PRODUCTS

It is possible to prepare dairy products such as "milk", "cream" and "cheese" which are almost indistinguishable in taste from the commercial dairy products such as milk, cream and cheese, but which differ from them inasmuch as a high percentage - at least 80% - of the milk fats has been removed and in its place a slightly smaller, equal or even larger amount of a vegetable oil with a high iodine value (iodine value higher than 60) has been substituted. We shall refer to such dairy products as "Substituted" dairy products. In particular we shall speak of "Substituted" milk, cream and cheese.

According to this invention "Substituted" cheeses can be produced which contain less than 20% of the original milkfats (milkfat to protein ratio less than 20% of that of whole milk) and which contain soybean oil, cottonseed oil, corn oil, peanut oil or some other natural vegetable oil having an iodine value higher than 60, and one may thus have in the cheese a total fat to protein ratio of about the ratio in whole milk or higher. Such "substituted" cheeses are almost indistinguishable in taste and flavor from the corresponding commercial type of cheese which they mimic. The total fat content of such "substituted" cheeses may amount to 80 - 120% of the corresponding cheese which the "substituted" cheese mimics, without resulting in an unacceptable difference in taste.

Such "substituted" cheeses may be produced in either of three ways:

Witnessed - November 14, 1956:

  
Carol Andren

- 1) the unsaturated vegetable oil (preferably a bland refined natural vegetable oil of the grade which is commercially used for the preparation of salad dressings) is emulgated in skimmed milk. An edible emulsifier may be used in this process which must not, however, interfere with the uptake of the oil by the curd. The curd is then prepared by the souring of the milk or by the addition of rennin. This curd is then taken through the steps customary in producing the type of cheese desired.
- 2) The vegetable oil is emulgated in high concentration in aqueous solution *(which can be skimmed milk)* and is added to skimmed milk. The emulsifier used must not interfere with the subsequent uptake of the vegetable oil by the curd. The curd is then prepared by souring the milk or by adding rennin. The curd so obtained is then taken through the steps customary in the producing of the cheese desired.
- 3) Curd is prepared from skimmed milk and this curd is then thoroughly mixed with a dense emulsion of vegetable oil in aqueous solution. The curd so prepared is then taken through steps customary in producing the type of cheese desired.

According to this invention the substitution of vegetable oil for the milkfats does not interfere with the microbial fermentation, and the products of this fermentation which give flavor and taste to the cheese will be the same for these "substituted" cheeses as for the corresponding natural or processed cheese.

Another way to prepare such "substitute" cheese is as follows:

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*C. W. Anderson*

Case Address

4) Cheese is prepared from skimmed milk having a fat content of less than 20% of whole milk. A vegetable oil is then emulgated with the cheese or else a dense emulsion of vegetable oil in water or <sup>in</sup> a skimmed milk concentrate is mixed in with the cheese and the excess water is then removed.

A "substituted" cheese may be prepared by this method from cottage cheese and some flavor may be added if desired.

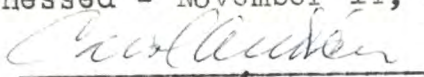
The "substituted" cheeses are of marked therapeutic value.

If the total fat to milkfat ratio is at least <sup>four</sup> ~~five~~, and if the milkfat to protein ratio is less than 1/5 of the ratio in whole milk, the daily dose should be large enough to satisfy about one half of the caloric requirement of the person treated. One third of this dose may be given three times a day. The patient ingests simultaneously a <sup>large</sup> ~~high~~ quantity of protein, a <sup>large</sup> ~~high~~ quantity of unsaturated vegetable oil without ingesting at the same time a large quantity of milkfats.

Irrespective of his diet as long as he remains on this therapy without permitting gradual increase in his body weight, the progress of arteriosclerosis of the coronary circulation will be markedly slowed.

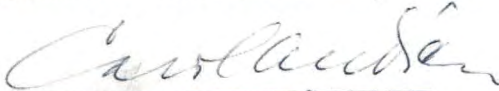
Cream in which the milkfats are similarly substituted by vegetable oil of an iodine value exceeding 60, can be used in coffee, soups and vegetables with only an almost indistinguishable change in taste and flavor. Such cream can be produced from skimmed milk -

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Carol Andrén

- a) by emulsifying the unsaturated vegetable oil in skimmed milk;
- b) by adding to the skimmed milk a highly concentrated emulsion of vegetable oil in water.

Witnessed - November 14, 1956:



Carol Andren

I CLAIM:

1) A process for making dairy products consisting in replacing part or all of the milk fats with an unsaturated vegetable oil of an iodine value exceeding 60 (obtained by refining a suitable vegetable oil to a degree usual in preparing bland salad oils).


2) A process for making therapeutic cheese consisting in the following steps. One step of emulsifying a vegetable oil in skimmed milk (using an emulsifier which does not interfere with the uptake of the oil droplets by the curd) and a second step of preparing the curd from this emulsion either by souring the emulsion or by the addition of rennin, the steps customary in producing the cheese of the desired type from the curd.

3) A process for making therapeutic cheese consisting in the step of adding to skimmed milk a highly concentrated emulsion of a vegetable fat (which has been prepared by using an emulsifier that does not interfere with subsequent uptake of the oil droplets by the curd), the step of preparing the curd either by souring this mixture or by the addition of rennin, the steps customary in producing the cheese of the desired type from the curd.

4) A process for making therapeutic cheese consisting in mixing with the curd obtained from skimmed milk a highly concentrated emulsion of vegetable oil until the curd takes up the oil droplets and the carrying of the curd so obtained through the steps customary in preparing the cheese of the desired type.

5) A cheese containing a vegetable oil having an iodine value

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in excess of 60, in an amount to have a vegetable oil to milk-fat ratio in excess of ~~4~~<sup>4</sup>, and having a low content of milkfats, the milkfat to protein ratio being less than 1/5th of the ratio in whole milk.

6) A cheese according to Claim 5) the vegetable oil being *sunflower oil* soybean oil, cottonseed oil, corn oil or peanut oil in salad oil grade.

7) Therapeutic cream containing less than 20% of milkfats contained in the corresponding commercial type of cream and containing unsaturated vegetable oils of an iodine value in excess of 60 in an amount that brings up the total fat content of the cream to about the level of the corresponding commercial type of cream.

November 14, 1956.

Witnessed:

*Carol Andren*  
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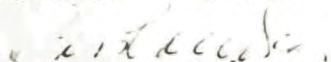
THERAPEUTIC DAIRY PRODUCTS

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Such "substituted" cheeses may be produced in either of three ways:

Witnessed - November 14, 1956:

  
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