

Whey Seen Source of Protein Soft Drinks

Suppose you could make soft drinks nutritious as well as refreshing without appreciably increasing their cost or lowering their taste appeal. Suppose further that this added nutrition was in the form of protein isolated from whey, a byproduct of cheese manufactured, which is now largely wasted and could seriously pollute our streams.

Sounds like a way to combat malnutrition—especially among the young, “chip-and-soda” set—and help avoid pollution at the same time, doesn't it?

Chemist Virginia H. Holsinger, Linda P. Posati, E. David DeVilbiss, and Michael J. Pallansch, of the Agricultural Research Service, Dairy Products Laboratory, Washington, D.C., have achieved some encouraging success in adding proteins isolated from cottage cheese whey to carbonated and noncarbonated beverages.

This research opens new possibilities for the nutritional fortification of widely used snack beverages if the whey products can be concentrated commercially at a reasonable price.

Whey contains proteins and other nutritious elements in highly dilute form. It is produced in prodigious quantities—9 pounds of liquid whey for every pound of cheese made—which adds up to 15 billion pounds of whey solids a year. In spite of whey's potential value, not nearly enough applications have been found to use it all.

Also prodigious is the production of soft drinks in the United States—almost 75 billion 8-ounce bottles every year. That's enough for about a bottle a day for every man, woman, and child. Children and teenagers, of course, drink more than their share of these beverages. To the extent that they pass up milk and fruit juices for soft drinks, they are replacing dietary nutrients, such as calcium and protein, with “empty” calories.

If soft drinks are so popular, the ARS researchers reasoned, why not fortify them with nutritious protein? The cottage cheese whey proteins are well suited for this, since their slightly acid taste enhances the tangy flavor of most soft drinks. Besides, this acid whey has been used less than the sweet whey from other cheeses because of special problems encountered in processing and drying the cot-

tage cheese byproduct.

In isolating the protein from cottage cheese whey, ARS scientists used two filtration processes to remove the salts and most of the lactose, or milk sugar, which represents about 65 percent of the solids in cottage cheese whey. When the resulting protein solution was condensed and dried, it contained over 80 percent protein and only about 10 percent lactose.

Several flavors of soft drinks

were fortified with 2.3 grams of whey protein per 8-ounce bottle. After storage at room temperature for a year, the fortified carbonated beverages retained excellent clarity and color. For the first 200 days the flavor also remained unchanged, although a slight whey taste could be detected at the end of the year. These are excellent keeping properties, since 90 percent of all carbonated beverages are sold within 30 days of bottling.

Whey protein was also incorporated at the ARS Dairy Products Laboratory into seven flavors of the popular “ade” drinks that are sold as powder to be mixed with water at home. These beverages, when recon-

stituted, contained 0.5 or 1.0 percent protein. They were submitted, along with controls containing no protein, to a taste panel of experienced dairy product judges. The judges could detect the whey proteins, even at 0.5 percent level, but none of them thought that the taste was objectionable. In general, the citrus-flavored fortified drinks scored better in taste than those with noncitrus fruit flavors.

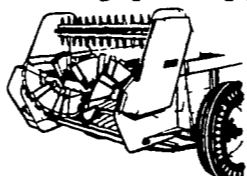
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