

Consuming Thoughts

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During the past several years, Pennsylvania State University food scientists in the College of Agriculture have conducted research on blanching vegetables.

Results of their research will help consumers improve the quality of freezing vegetables in their home. Blanching vegetables prior to freezing not only improves flavor but also improves color and texture.

Blanching is the process of heating vegetables quickly to destroy enzymes, remove air, and shrink food. This practice minimizes vitamin losses and slows unwanted color and flavor changes that occur after vegetables are frozen. It also reduces environmental and pesticide residues and kills or removes many microorganisms on vegetable surfaces.

Members of the Food Science

Department have perfected microwave blanching, but learned that some vegetables are better if they are not blanched in the microwave.

They have successfully microwave-blanched and air-cooled spinach, sugar snap peas, green beans, and Brussel sprouts and found them to be superior to conventionally blanched and water-cooled vegetables.

However, researchers disliked microwave-blanched broccoli and cauliflower.

Air-cooling of blanched vegetables has been discouraged for years. Past directions emphasized that blanched vegetables should always be water-cooled, even using ice in many references, to maximize the nutrient content.

Now it is known that properly heat-stabilized (blanched) vegetables lose both water-soluble vita-

mins and fresh flavors when water-cooled. If the bacterial quality permits vegetables to be eaten raw, as is the case except where fresh animal manure is used around growing plants, then air-cooling of blanched vegetables is an acceptable practice and results in a safe food with superior quality.

Vegetables may be blanched in boiling water, microwave ovens, or steam. Compared with those blanched in boiling water, microwave and steam-blanched vegetables retain more water-soluble

vitamins and have fresher flavor. However, microwave and steam blanching may be less effective in removing microorganisms and residues from food surfaces.

Blanching times depend on the blanching method as well as the kinds and sizes of vegetables. Ideal times are just enough to destroy most enzymes. If vegetables are blanched for too short a time, their quality may be worse than if not blanched at all. Over-blanching causes excessive quality losses.

The water used for blanching gradually accumulates dirt,

residues, and vegetable components. It should be changed after each three to 10 batches to prevent its adding strong off-flavors to blanched vegetables.

If you would like to receive a complimentary copy of the Penn state's recommendations for blanching vegetables pick up a copy at our office or send a self-addressed business size envelope with 45 cents postage to: Blanch Vegetables, Berks County Cooperative Extension, Berks Co Ag Center, PO Box 520, Leesport, PA 19533-0520.

Breakthroughs May Enhance Economic Value Of Dairy Products

HUNTINGDON (Huntingdon Co.) — By manipulating the molecular structure of a milk protein, Cornell University scientists have demonstrated the feasibility of creating new dairy ingredients and products with enhanced economic value.

The researchers have borrowed genetic engineering techniques used by the pharmaceutical industry, in which properties of a molecule are predictably changed based on a knowledge of its three-dimensional structure. To illustrate the technique's potential, they have slightly altered the structure of a milk protein normally found in whey, beta-lactoglobulin, so

that it almost eliminates the annoying tendency of yogurt to form pools of liquid during storage, said Carl Batt, associate professor of food science.

"Improvements to beta-lactoglobulin that enhance its performance during food processing will have a profound effect on its economic value," he said. "We've shown that genes can be altered to produce variants of beta-lactoglobulin. We've shown that these genes can be altered to produce variants of beta-lactoglobulin. We have every reason to believe that these genes eventually can be expressed in cows, which would open new markets for the use of whey proteins."

Beta-lactoglobulin is found in the milk of many, but not all, ruminants. An interior cavity in the protein binds a vitamin, retinol, and scientists believe beta-lactoglobulin's physiological function

may be, in part, to deliver retinol to the developing nursing animal. Humans do not make this substance, although placental protein 14 is very similar

Yogurt made with small amounts of modified beta-lactoglobulin forms a gel six to 10 times as easily as ordinary yogurt, Batt said. The process also cuts the processing temperature from 85 degrees Celsius to 70 degrees or less, eliminates the need to add starch in order to obtain a better gel, and reduces the time needed for curd formation. All these factors could lower the cost of yogurt manufacturing. In addition, the modified protein reduced the separation of whey into the pools on top of yogurt by as much as 83 percent. The researchers also are exploring using modified beta-lactoglobulins as transport agents for pharmaceuticals

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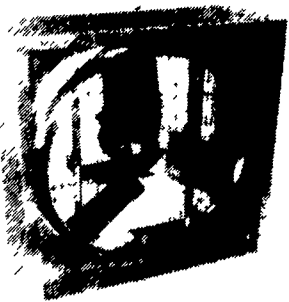
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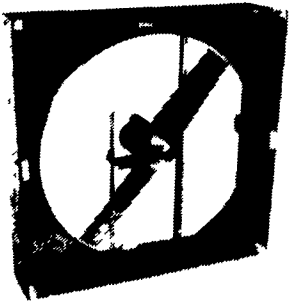
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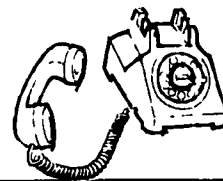
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