A Simple Way To Improve Starchy "Weaning Foods"

ECHO Inc.

The following is abstracted from information provided by Noel Vietmeyer with the USA National Academy of Sciences which appeared in the June 1993 issue of *Spore Magazine*..

"Throughout the developing world boiled starchy grains and roots are given as weaning food.... Boiled starch is so thick and pasty that it is difficult for the very young to swallow enough to gain adequate nourishment." Germinated grains release enzymes that break down starch (as in the process of malting). "A very small quantity of malted millet or sorghum flour added to a pot of mush made from corn meal, cassava, arrowroot, potato or other boiled staples turns it to liquid in minutes. It is liquid enough for the baby to swallow but dense enough to be filling. It is also more tasty because most of the starch has been converted to sugar." [Ed: sprouted sorghum should not be eaten because of its cyanide content, EDN 10-2, but 2-3 grains in a bowl should be harmless.]

We found further information in the book *Food from Dryland Gardens*, p. 332. It states that you can make 100 g of a millet porridge of suitable consistency for a weaning food that contains 25 kcal of energy and 0.4 gram of protein. On the other hand, 100 g of porridge of the same consistency made with addition of malt contains 83 kcal and 1.3 g of protein.

ECHO spoke with Mark Dafforn, Noel's assistant, for more details.

Q. Is this process actually used in some location among the poor or is it a totally new idea? Where did the idea come from?

A. Babyfood manufacturers in developed countries routinely liquify their products, but it has a very short track record in developing countries. Noel found the recommendation in a technical report on a Swedish Development Agency (SEDA) project. It has been used in Tanzania and India, and the idea has now been picked up and is being tried in several other places. No one including ourselves has done a comprehensive look at its usefulness.

In a way, the concept of liquefying staples is like oral rehydration therapy (ORT) twenty years ago...an idea that was so simple it was ignored by scientists but picked up by desperate development workers and since then ORT has saved hundreds of thousands of lives at a few pennies apiece.

Q. Does malting change the nutritional value of the porridge?

A. The porridge will be more runny, but that is because the water that was tied up in the starch is released. The starch is essentially predigested. All the original nutrients are still there.

Here is how malnutrition can develop if the porridge is not malted. Children in Third World countries often go through a nutritional crisis when they are weaned. Babies are often weaned directly onto traditional adult porridges. Because babies have trouble swallowing the thick porridge, mothers dilute it with water. It can be so diluted that the child's stomach is filled but it has not eaten as much food as it should. Also, if unboiled water is used, disease organisms are introduced.

Q. The directions said "a small quantity" per pot of mush. How much is a small quantity?

A. Let's say a teaspoon, half a teaspoon, or even less malt for a big bowl. As you know, enzymes are catalysts which speed up reactions without being

used up in the process. If you use less enzyme it will take longer. Of course, if the mush is really thick think of dry mashed potatoes it doesn't contain enough water to liquify in the first place.

Q. Where does one get malt? We used to buy malted milk shakes. Is this the same thing?

A. I think there's usually an important difference. In those malts the enzyme (called amylase) has been deactivated by heat so you get the flavor but you don't get runny milkshakes! (By the way, so little malt is used in liquefying staples that traditional flavors aren't overwhelmed.) You can usually purchase malt flour at health food stores. It's often called brewer's malt, because it's used to convert the starches in grains to sugars as the first step in making beer. By the way, please point out that though malt is used in brewing, it has no alcoholic content itself...that comes later, from fermenting sugars with yeast.

Q. Let's be very specific. When you used sprouted wheat, did you mash the fresh sprouts, or did you dry them first then make them into a flour?

A. Well, actually I just crushed the fresh sprouts between my fingers, and stirred. The amylase content is reportedly highest just after the seed has softened and begun to burst.

Q. Are there other applications?

A. It can be used with people needing a liquid diet with a high nutrient density. A starch based dish like mashed potatoes can be liquified while still retaining its familiar taste. If your readers have other ideas or experiences, we'd be glad to know. Just ask them to drop a brief, informal note to us at the National Academy of Sciences, Washington, DC 20418.

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