

All-Oat, All-Barley Breads Ahead? Maybe!

New interest in tasty, all-oat or all-barley breads might be sparked by the laboratory experiments now being conducted by chemist Wallace Yokoyama and postdoctoral nutritionist Hyunsook Kim. These delicious, healthful breads could appear on bakery or supermarket shelves that today are dominated by wheat flour-based loaves, yet would provide a different array of vitamins, antioxidants, fiber, protein, and other components that “aren’t present in whole-wheat breads,” says Yokoyama.

“The large variety of multigrain loaves currently available in U.S. supermarkets and bakeries suggests that people have a growing interest in trying new kinds of whole-grain breads,” says Kim. Both scientists are with the ARS Western Regional Research Center in Albany, California, near San Francisco.

In preliminary experiments, Yokoyama, Kim, and colleagues used a commercially available, plant-derived fiber known as HPMC (short for hydroxypropyl methylcellulose) as a substitute for the gluten that’s present in wheat but lacking in other grains. Gluten nimbly traps the airy bubbles formed by yeast, lifting doughs and yielding high, attractive, nicely textured loaves.

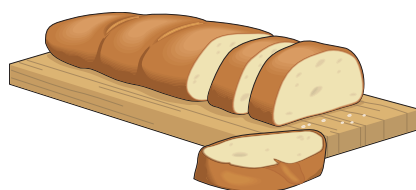
But HPMC performs that essential biochemical chore, too. That was shown many years ago in research, with rice, conducted by now-retired Albany scientist Maura M. Bean.

For their tests, Yokoyama and Kim fed laboratory hamsters a high-fat diet and oat, barley, and wheat breads with HPMC added. They found that the experimental breads had cholesterol-lowering effects.

The HPMC that the scientists are investigating is derived from a plant source proprietary to manufacturer Dow Wolff Cellulosics of Midland, Michigan. Though this HPMC is widely used in familiar foods—as a thickener, for instance—its cholesterol-lowering properties as an ingredient in whole-grain breads haven’t been widely studied, says Yokoyama.

The Albany studies may ease oats and barley into the supermarket and bakery spotlight, giving these venerable grains a larger role in our meals and snacks—and our health.—By **Marcia Wood, ARS.**

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Oats, Barley, and Wheat: Great Reads and Web Viewing

Find a fascinating fact about oats, barley, or wheat—or even an intriguing recipe—in these informative books, websites, and other sources selected by reference librarian Rebecca Mazur at ARS’s National Agricultural Library, Beltsville, Maryland:

Barley for Food and Health, by R.K. and C.W. Newman (2008).

Tackle the included recipes for Turkish Barley-Yoghurt Soup, Swedish Barley Sausage, or Danish Pancakes and you’ll be appropriately fueled up for perusing this overview on research and development of new, barley-based foods—and much more—presented from a food-maker and food-science perspective.

USDA National Nutrient Database for Standard Reference
nal.usda.gov/fnic/foodcomp/search

Want to know exactly what’s inside your breakfast oatmeal? Check out this comprehensive database, generally regarded as the nation’s premier analysis of the calories, vitamins, minerals, and other components in familiar foods.

The Small Grains Field Guide, edited by J.J. Wiersma and J.K. Ransom (2005).

Anyone thinking about growing oats, barley, or wheat will want to pick up this 158-page handbook of practical, reliable information from university Extension Service experts in North Dakota and Minnesota.

Barley Science: Recent Advances from Molecular Biology to Agronomy of Yield and Quality, by G.A. Slafer et al. (2002).

A useful anthology of articles about everything from stopping unwanted sprouting of barley kernels before harvest to using wild barleys as a source of genes for superior plants of tomorrow.

Proceedings, 8th International Oat Conference (2008)
tinyurl.com/oatconf

Leading oat researchers worldwide offer abstracts, posters, and PowerPoint presentations in this preliminary, online compilation from the “Healthy Foods and Healthy Lives” oat conference, a highly regarded forum.

GrainGenes
wheat.pw.usda.gov/GG2/index.shtml

This ARS-curated website offers an enlightening window on the world of those who study the genomes of oats, barley, wheat, and rye, and the wild relatives of these great little grains.

For an industry view, browse this quartet of informative, easy-to-navigate websites: **National Barley Foods Council**, barleyfoods.org; **National Barley Growers Association**, idahobarley.org/nbga; **North American Millers’ Association**, namamillers.org; **U.S. Grains Council**, grains.org. ★