

Inventing New Oat and Barley Breads

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All-oat or all-barley breads that ARS scientists are developing may offer a different array of vitamins, antioxidants, fiber, protein, and other healthful components than that in whole-wheat breads.

(PhysOrg.com) -- Delicious new all-oat or all-barley breads might result from laboratory experiments now being conducted by Agricultural Research Service (ARS) scientists in California.

Research chemist Wallace Yokoyama and postdoctoral nutritionist Hyunsook Kim want to develop new and tasty whole-grain oat or barley breads that offer antioxidants, fiber, and other components in an array different from that found in today's whole-wheat breads. The researchers work at the ARS Western Regional Research Center in Albany, Calif.

In preliminary experiments, Yokoyama, Kim and their colleagues made experimental all-oat or all-barley breads, as well as whole-wheat breads, using a commercially available, plant-derived carbohydrate known as

HPMC (short for hydroxypropyl methylcellulose). They are interested in HPMC as a substitute for gluten, a compound present in wheat but lacking in other grains such as oats and barley.

Gluten traps the airy bubbles formed by yeast, lifting doughs to form high, attractive, nicely textured loaves. But HPMC can perform that essential biochemical chore, too. That was shown many years ago in research with rice flour, conducted by now-retired Albany scientist Maura M. Bean.

Yokoyama and Kim determined that barley, oat, and whole-wheat breads made with HPMC had cholesterol-lowering effects. They found this in tests with laboratory hamsters that were fed a high-fat diet and the experimental breads.

The HPMC that the scientists are investigating is derived from a plant source proprietary to manufacturer Dow Wolff Cellulosics of Midland, Mich. 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, Yokoyama reported.

[Read more](#) about this research in the February 2010 issue of Agricultural Research magazine.

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