

## Snacks with fiber

7/05/2007-The push to add more whole grains and fiber to foods has invaded the snack sphere. A Kansas State University professor is researching how extrusion processing can be used to make fiber-enriched flour taste more like that used in everything from cookies to tortillas, in hopes that food manufacturers can make popular snacks more healthful without losing taste.

Funded by a one-year, \$30,000 grant from the Kansas Wheat Commission, Sajid Alavi, an assistant professor of grain science and industry at K-State's College of Agriculture, and fellow researchers created flour enriched with varying levels of bran. They mixed the bran-enriched wheat flour with water using a standing mixer like the one cooks may use at home, and they let the dough sit overnight. The hydrated flour was then sent through a machine called an extrusion processor. The processor uses a series of rotating screws and heated barrels to precook the flour before it's pushed out of the end. After ropes of the dough come out, they are taken to a drying oven or a freeze dryer, the latter of which Alavi said produced higher-quality flour. Then the dried ropes were ground back into flour, ready to use for baking.

"The more fiber you add, the more the dough quality deteriorates," Alavi said. "We're hoping this process will increase some of the properties of the flour. The foods might have a better physical quality."

The researchers made cookies and tortillas with bran-enriched flour that had been precooked using extrusion processing, and with bran-enriched flour that wasn't precooked. In taste tests, snackers liked cookies and tortillas made with enriched bran, whether precooked or not, but the precooked flour did have an increased level of soluble dietary fiber, which the body can readily absorb.

Alavi said researchers didn't necessarily get better properties with extruded flour. In the future, he said researchers could look at extruding the bran separately from the flour.

Alavi said snack food producers may be able to use this precooking method to add fruits and vegetables to snack foods.

"With fruit- and vegetable-based snacks, it's still hard to process the dough, so you really don't see those kinds of products out there," he said.