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# Soy may boost texture of microwave dough products

By Stephen Daniells, 01-Jun-2011

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## **Substituting wheat with soy in microwavable pocket-type dough products may improve the food's texture and reduce the detrimental effects of microwave cooking, suggests a new study.**

According to findings published in the *Journal of Food Science*, replacing 20 percent of the wheat flour in the pocket-type dough product with soy produced better textural results when the products was cooked from frozen in the microwave.

*"These results demonstrate improved functionality of microwavable dough upon soy addition. Product developers can optimize soy addition to enhance nutritional and textural properties of microwavable doughs,"* explained the researchers, led by Yael Vodovotz from The Ohio State University.

The market potential for such products is evident, said the researchers. Indeed, a 2011 report from Packaged Facts showed that the sales of frozen foods in the US increased by about 22 percent between 2006 and 2010. The market is currently valued at around \$56 billion.

The food industry often uses pocket-type flat doughs to encase meat, vegetables and other fillings, explained the researchers. Compared to conventionally baking, microwave cooking of these products does not produce a crust, and the dough may take on a "tough and rubbery texture."

The new study indicated that *"partial substitution of wheat flour with soy, in the form of soy flour and soy milk powder, prevented the deleterious textural changes associated with microwave heating,"* explained Dr Vodovotz and her co-workers.

*"These results suggest that soy is a functional ingredient for the textural improvement of microwavable pocket-type flat doughs,"* they added.

### **Formulation details**

A range of products were tested with and without soy addition at levels of 10, 20, and 26 percent. Products were conventionally baked or microwaved.

Results showed that the product that contained only wheat and no soy was "soft, rubbery, and tough" with higher levels of 'freezable' water.

Similar results were observed when the soy-containing products were conventionally baked.

However, when the soy products were microwaved the cohesiveness was reduced, which improved the texture of the product.

The best results were observed for a soy replacement level of 20 percent, added Dr Vodovotz and her co-workers.

*"Nonetheless, soy addition did not prevent the microwave-induced development of rubbery texture, depicted by high springiness values, thus further formula optimization is needed.*

*"Par-baking technology has been shown to reduce textural changes due to microwave baking. Soy addition to par-baked doughs could further improve texture of microwave baked products, thus resulting in acceptable organoleptical quality,"* they concluded.

Source: *Journal of Food Science*

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*"Effect of Soy Addition on Microwavable Pocket-Type Flat Doughs"*

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