

# Model baked products for studies of fibre addition

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Further information: <http://dream.aaeuropae.org> email: [dream@uni-li.si](mailto:dream@uni-li.si)

The DREAM project has developed models for a range of food systems. Within the bakery sector, model bread and biscuit products have been developed to study the effects of fibre addition.

## Food models

This work has been carried out as part of the EU 7th framework project DREAM. Models have been developed by members of the project consortium for a wide range of food systems including bread, biscuits, soft cheese, dairy dessert, pork, broccoli and tomato purée. These include predictive models, and model products with standardised production and assessment methods and well defined characteristics. Applications studied include effects of ingredients and process conditions on sensory characteristics, nutrition and food safety.

## Model bread product

A model bread product was developed by project partners VTT and INRA Nantes, consisting of a spiral-mixed pan bread. Campden BRI was involved in its validation. Differences in loaf volume were seen between bakeries, but there were consistent effects of bran addition (Figure 1) and the model is being used to study the effects of fibre on structure and digestibility.



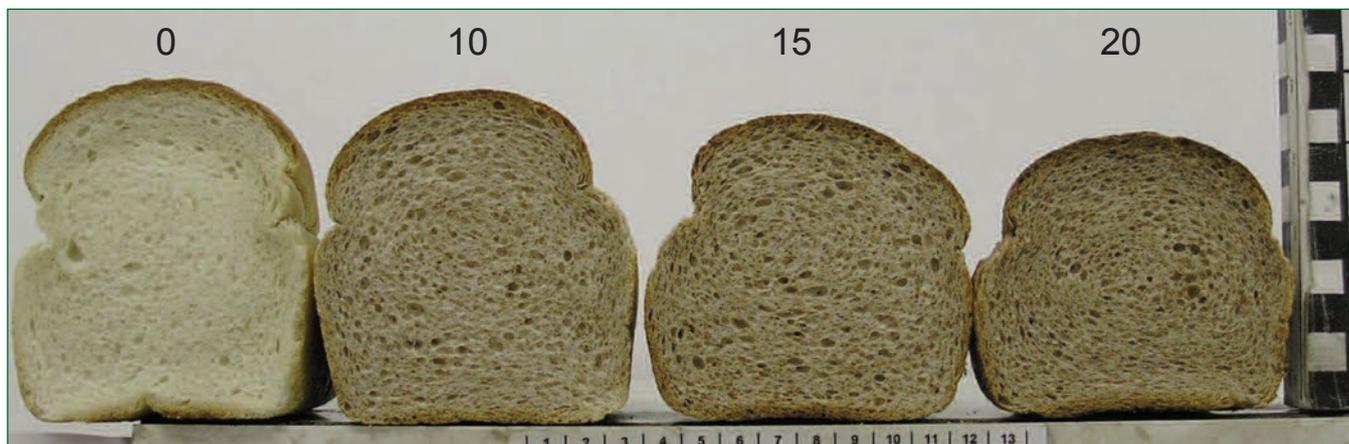


Figure 1 Bread model product with various levels of bran addition (% of flour mass)

## Model biscuit product

A digestive biscuit model product was developed by the project partners United Biscuits and Campden BRI. This has been used to study colour and moisture development during baking (Research Summary Sheet 2011-37), bubble structure, and the effects of fibre on texture and digestibility.

## Fibre addition experiments

Trials were carried out for biscuits with added bran and inulin fibre, with variations in the amount of fibre, water and wholemeal flour, and the bran particle size. Texture was measured with cylindrical probes, including a novel multiple probe (Figure 2). Example traces are shown in Figure 3 for the single probe. Fibre addition increased the firmness of the biscuit. Inulin caused a brittle texture with a high initial peak force. Bran addition reduced the 'crunchiness' of the biscuits, characterised by the number of small peaks.

## Significance

Standardised model food products provide a common basis for the study of food nutrition, safety and quality, enabling findings to be transferred and applied between researchers and manufacturers.

Figure 2 Texture testing of biscuits

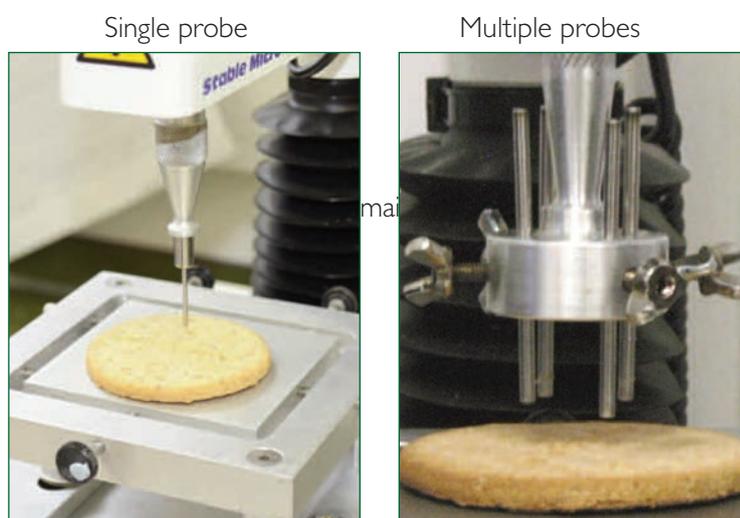
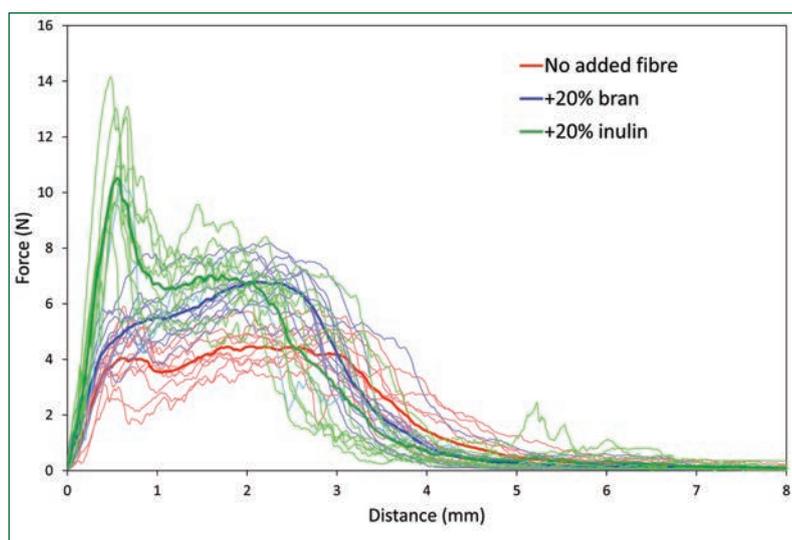


Figure 3 Force-time traces for single indenter tests of biscuits



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