

Crusts, Crumbs and Chromatography

Voice-over 1:

It's five a.m. at Krakow's University of Agriculture, in Poland.

They might look like bakers, but in fact they're specialists in human nutrition. They mix flour, water, fresh yeast and salt in predetermined proportions... and leave the dough to ferment for an hour.

The researchers want to know how the fermentation process affects glucose levels in the blood of those who eat it. And they have a theory.

Voice-over 2:

We know that the longer the fermentation process, the more alcohol and carbon dioxide is produced in the dough. Both these products are produced by simple sugars and it's these sugars which are responsible for a high glycaemic index in bread. So we reckon that if the dough ferments for longer, the bread will produce less glucose in humans, because the simple sugars will have been transformed, into alcohol and gases in the baked bread. So there'll be less sugar to be absorbed by the body. These experiments should help us to confirm that theory.

Voice-over 1:

The bread is baked for twenty minutes at 230 degrees Celsius. Then, it's sliced into portions of exactly 111 grams... before the second part of the experiments begins.

Voice-over 2:

The participants will now eat these rolls and we'll measure the glucose concentration in the blood.

Voice-over 1:

Fifteen guinea pigs, all students at the university, eat the 111 grams of bread, and blood samples are taken at different stages of the digestion process - four samples in about an hour and a half. Volunteers think this research is vital to improve the nutritional qualities of the bread of the future.

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