

Reduction of *trans*-Fatty Acids in Croissants

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Trans fatty acids (TFA) are still a topic in Germany for healthy diets even when most foods today contain only minor contents of TFA today. The mean Consumption provides less than 1 per cent of energy from TFA as is recommended by the German and international food associations. However, there is still a group of persons with higher TFA intake i.e. male aged between 14 and 34 years. These persons consume foods with increased contents of elaidic acid as was pointed out by a study of the German Federal Institute for Risk Assessment. Looking for the sources of this extra intake of TFA some foods like dairy products, meat, pizza, fried potato products and bakery products like croissants had been identified to be contributors of TFA to the diets.

While there are good products on the market with low TFA contents for deep and shallow frying there is still a problem for many bakeries to implement low TFA fats for products like pastries. In these products the fats have to ensure some special technical tasks such as plasticity for buildup of fine layers without rupture in the dough at a wide range of temperature and to provide good melting properties in the mouth in order to avoid a waxy mouth feeling. In the past these parameters had been matched by high TFA fats and many production lines are optimized to work with these fats.

In a benchmark study twenty new and common bakery margarines were tested to produce croissants. The bakery margarines had been analyzed for TFA content, the fatty acid composition and the melting properties (NMR), while the sensory qualities of the croissants had been assessed from a trained panel including colour, texture and aroma. In addition the croissant volumes had been determined. The identity of the fat blend composition was determined by a computer modeling program using fatty acid composition and the NMR data.

As a result some promising products with TFA contents at below 2 g/100 g fat showed equal performance for croissant production. For some products the temperature control during dough preparation is of crucial importance. While products with high TFA contents often show higher product volumes, the sensory qualities of some bakery margarines with low TFA content reached excellent scores.