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Title

Impact of the baking protocol on the structure of French crêpes

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Abstract

The purpose of this study is to understand and describe the mechanisms occurring during the baking of a French crêpe product with a focus on the impact of the baking temperature on the formation of the “leopard” appearance. A French crêpe is a very thin bakery product (ca. 0.7 mm thick), which is baked in less than 20 seconds at 240 °C +/- 20 °C in industrial conditions. Different microscopic techniques were used to understand the impact of the process parameters on the crêpe structure and the formation of the “fleur”. Crêpe baking is a very rapid process during which boiling occurs at selected locations of the crêpe-surface contact zone. The onset of boiling leads to the detachment of the crêpe batter from the baking surface: it is related to the balance between the resistance of the batter undergoing the baking transition and the vapor pressure inside the blister formed between the baking surface and the crêpe.

Highlights

- Crêpe baking temperature plays a major role on crêpe structure and surface structure
- Temperature baking of crêpe higher than 230°C yield in the formation of blisters in the Crêpe
- The fat phase gathers in the thicker part of the crêpe
- The proteins are more concentrated in the thinner part.

Keywords

Crêpe baking, Pancake, Lipid droplets, batter emulsion, Blister, Crumb structure.