Formation of acrylamide in cheese bread

Low addition of grated Mozzarella cheese (13.4 g/100 g dough) resulted after baking for 20 min at 200 degrees C in a moderate increase of acrylamide from 4 ppb in buns without cheese to 7 ppb in the cheese buns as analyzed by a LCMS/MS technique. The effect was strongly dependent on the amount of cheese added, and addition of 23.7 g cheese resulted in 958 ppb acrylamide. For an o/w rapeseed oil emulsion as a food model heated under conditions similar to those persisting inside bread during baking, it was further shown that acrylamide formation also occurred in absence of reducing sugars. In contrast, acrylamide was not observed in Pao de queijo a traditional Brazilian bread product made from fermented cassava flour, fresh eggs and a mixture of Brazilian Gouda type cheese and Mozzarella cheese pointing towards a role of eggs in protection against acrylamide formation.

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