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Optimization of composite dough for the enrichment of bread crust with antifungal active compounds

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ABSTRACT

The production of composite or double-layer (DL) bread was optimized to reduce the amount of the chemical preservative calcium propionate. It was validated using sourdough (SD) in the crust (0 – 80 g/100 g crust dough). Par-baked (PB) and fully baked (FB) breads were evaluated based on their shelf-life extending, bread technological and sensorial properties. The shelf-life of PB bread was increased with ≥ 60 g SD/100 g crust dough for air packaged and ≥ 20g SD for modified atmosphere packaged (MAP) breads. Use of 60 g SD/100 g crust dough was sufficient to achieve the same level of preservation with or without MAP. Par-baked and fully baked bread were mould free for respectively 7 and 30 days using 60 g sourdough in 100 g crust dough. Specific volume decreased for PB bread containing 40 - 60 g SD/100 g crust dough and for FB bread with 80 g SD/100 g crust dough. Accordingly, crumb hardness was impaired under the latter conditions.

Keywords: double-layer bread; bread spoilage; sourdough; antifungal activity