SODIUM REDUCTION IN BAKERY PRODUCTS: CURRENT APPROACHES, CHALLENGES AND OPPORTUNITIES

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Reducing sodium content in bread remains a critical objective in public health nutrition, given the established association between excessive sodium intake and increased risk of cardiovascular and other chronic diseases. The World Health Organization recommends that adults should consume less than 5 grams of salt per day (equivalent to about 2 grams of sodium), yet current intake levels in many countries significantly exceed this threshold [1]. As bread constitutes a significant source of dietary sodium globally, targeted reformulation strategies are essential to improve population health outcomes.

This synthesis reviews technological approaches and food innovation strategies aimed at reducing sodium in bread and bakery products. The methods considered include:

• Progressive reduction of salt content to allow gradual consumer adaptation and minimize sensory rejection.
• Partial substitution of sodium chloride with lower-sodium alternatives, such as potassium chloride, while addressing potential bitterness through careful optimization.
• Fermentation techniques, particularly sourdough and yeast-based processes, which enhance flavor complexity and amplify the perception of saltiness.
• Incorporation of flavor-enhancing compounds, including yeast extracts, glutamates, and nucleotide-based ingredients, to mimic the taste profile of salt while maintaining low sodium levels [2].

The reviewed strategies demonstrate that:

• Gradual salt reduction is effective in maintaining consumer acceptance over time.
• Potassium chloride and other substitutes can lower sodium levels significantly, though sensory challenges must be managed.
• Sourdough fermentation contributes positively to flavor development, supporting sodium reduction without compromising product quality.
• Flavor enhancers provide viable solutions to replicate saltiness perception, ensuring palatability in low-sodium bread formulations [3].

Achieving meaningful sodium reduction in bread and related products requires a synergistic approach that integrates technological reformulation with consumer education and supportive public policies. Such combined efforts foster long-term improvements in dietary patterns and contribute to better public health outcomes.

Keywords: *bread, consumer health, sodium chloride, technological processes, sourdough*

Acknowledgments. This work was supported by a grant of the Ministry of Education and Research, CCDI-UEFISCDI, project number PN-IV-PCB-ROMD-2024-0135, within PNCDI IV and NARD, 25.80013.5107.22ROMD.

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