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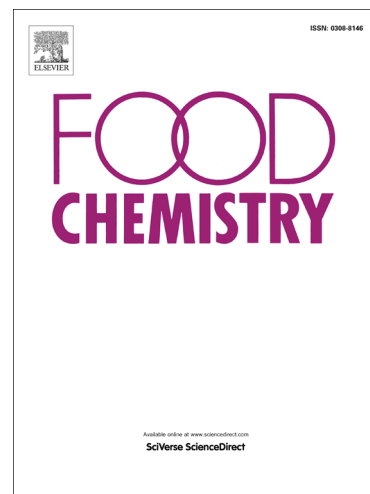
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**Oro-gastro-intestinal digestion of starch in white bread, wheat-based and gluten-free pasta:
unveiling the contribution of human salivary α -amylase**

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Abstract

Starch is a major determinant of the glycemic responses elicited by our diets, but the exact contribution of the two main amylolytic enzymes (salivary and pancreatic α -amylases) remains a matter of debate. Our aim was to investigate the contribution of the oral, gastric and intestinal phases to the hydrolysis of starch in bread and pasta during dynamic *in vitro* digestions using DiDGI[®]. Before its inactivation by the low gastric pH, salivary α -amylase released about 80 % of the starch in bread and 30 % of that in pasta, hydrolysing over half of it into oligosaccharides. Accordingly, the contribution of pancreatic α -amylase during the intestinal phase was lower for bread than pasta. Our results are well correlated with *in vivo* data, and demonstrate the importance of salivary α -amylase during oro-gastric processing of starchy foods. This finding is discussed in relation with observations regarding salivary α -amylase from other fields of knowledge.

Keywords: Amylolysis; Hydrolysis; Bread; Spaghetti; Carbohydrates; Saliva; Bolus

Abbreviations: HSA, Human salivary α -amylase; GF, Gluten-free; GI, Glycemic Index; eSGF, Simulated Gastric Fluid electrolyte solution; eSIF, Simulated Intestinal Fluid electrolyte solution.

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