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IN VITRO STARCH DEGRADATION FROM WHEAT-BASED PRODUCTS IN THE
PRESENCE OF LIPID COMPLEX EMULSIONS

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ABSTRACT

The lower glycemic index when lipids are coingested with starchy foods was supposed to result from several factors such as lower gastric emptying, higher insulinic response, decreased glucose absorption through the upper small intestine and lower starch accessibility to *alpha*-amylase. This study investigated whether lipid/food structure interactions may play a role in limiting starch accessibility to *alpha*-amylase. Three wheat-based products (wheat starch, white-wheat bread and 5-mm spaghetti strands), differing in food structure/porosity, were incubated for 8 h with human salivary *alpha*-amylase (HSA) in the presence or not of two differently-sized emulsions (7.1 and 0.6 μ m). HSA-specific activity was not modified in the presence of the coarse emulsion (7.1 μ m). On the whole, regardless of the food structure, the two emulsions had no marked effect on the rate and degree of *alpha*-amylolysis. However, in the presence of the fine emulsion, starch from white-wheat bread tended to be more slowly hydrolysed effect being significant ($P < 0.05$) between 10 and 30 min of *alpha*-amylolysis. In the case of pasta, starch tended to be more rapidly hydrolysed in the presence of the coarse emulsion with a significant effect at 4 h of *alpha*-amylolysis. We concluded that emulsified lipids do not interact with complex starchy food structure of white-wheat bread and pasta in a way that significantly limits the action of *alpha*-amylase.

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