Carbohydrate digestibility on wheat durum bread: preliminary hypotheses on raw materials role

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The 1997 FAO/WHO Expert Consultation suggested that the Glycaemic Index (GI) might provide an useful help to select the most appropriate carbohydrate-containing foods in order to reduce several diseases. The glycaemic response to food, which in turn affects the insulin response, depends on the rate of gastric emptying, digestion and absorption of carbohydrate from the small intestine, as well as on the effects of the other food factors to potentiate non-glucose mediated insulin secretion. A range of food factors has been identified as important determinant of the glycaemic response to carbohydrate foods. Therefore, different food products or composition of meals with the same amount and type of carbohydrates show differences in glycaemic and insulinemic responses.

In this view, the aim of this research was to identify the technological factors which influence the glycaemic index (GI) in bread making of reground semolina and wholemeal flour. Five ancient accessions (Russello, Timilia, Bidì, Biancolilla and Senatore Cappelli) were compared to five modern commercial blends and an ancient mix between Timilia and Russello accessions under technological and nutritional profiles. The parameters under study were: moisture, protein, total starch, ash, farinographic profile, wet and dry gluten, gluten index, -amylase activity, particle size and damaged starch.

Our results showed the best attitude of wholemeal flour by old accessions in a health point of view, due to the higher gluten content, poor quality of gluten and greater absorption of water. On the contrary, modern varieties of reground semolina are more suitable for breadmaking, owing to the higher technological attitude and the greater alpha-amylase activity.

This work is considered the first step of a PhD project conducted within the University of Foggia.

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