

Development of durum wheat with varying percentage of B-starch granule content and relationship between starch swelling power and in-vitro starch digestion

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Recent work has shown that changing the percentage of B-type starch granules in the starch of wheat can alter technological properties for baking (Park et al 2005), noodles (Chen et al 2003) and spaghetti made from durum wheat (Soh et al 2006). The latter study indicated there might be a benefit in developing durum wheats with slightly elevated B-granules for conventional pasta quality. This study describes the progress in the development of durum wheat germplasm with lower and elevated B-granule content compared to cultivated durum wheat (%B-granules ~22-27%). Particle size analysis of starches from 217 lines identified B-granule contents ranging from 19.9-43.3%. Selections were made for further crossing. Starch swelling power (SP) variation has been suggested as a useful test for developing wheats with potentially lower glycaemic index. We isolated starch from a set of wheat varieties that displayed variation in SP (8-16) and combined it with gluten and soluble components from durum wheat. The reconstituted flours that were obtained were made into spaghetti and the technological quality and in vitro starch hydrolysis rates were compared. Results will be discussed.