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María Belén Vignola, Mariela Cecilia Bustos, Gabriela Teresa Pérez

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Comparison of quality attributes of refined and whole wheat extruded pasta

María Belén Vignola[1], Mariela Cecilia Bustos[1], and Gabriela Teresa Pérez[1]

1: Instituto de Ciencia y Tecnología de Alimentos Córdoba (ICYTAC-CONICET-UNC). Facultad de Ciencias Agropecuarias, Universidad Nacional de Córdoba. 5000. Córdoba, Argentina.

Corresponding author: Dr Gabriela Teresa Pérez. Phone: +54 351 4334105, ext. 255. Fax: +54 351 4334105. Av. Valparaíso S/N, Córdoba, Argentina.E-mail: gaperez@agro.unc.edu.ar

Abstract

This work aimed at developing pasta with different types of flour to evaluate how different raw materials and particle size affect pasta quality. *Triticum aestivum* flour was obtained from two cultivars: Klein Guerrero and Baguette Premium 11. Grains were milled into white flour, whole-grain flour A (obtained by a cyclonic mill) and whole-grain flour B (obtained by a blade mill) to make white flour (FP), whole-grain A (WFAP) and whole-grain B (WFBP) extruded pasta. Particle size distribution and flour composition were determined in all flour samples, as were pasta cooking and nutritional properties. All types of flour showed different particle size distribution depending on composition and milling method. Both whole-grain flour pasta showed shorter optimal cooking time than FP samples due to disruptions in the gluten matrix by bran-germ particles. Cooked WFAP and WFBP samples were harder than FP samples. The highest antioxidant properties were obtained for whole-grain pasta although flour particle size did not influence protein and antioxidant contents. Even though whole-grain pasta did not show the same technological quality as that in FP, they offered a better nutritional profile due to higher protein and antioxidant levels and other healthy compounds, like fiber, found in the whole grain.

Key Words: white flour, whole-grain flour, pasta cooking parameters, flour particle size.