



International Conference

FROM SEED TO PASTA III

A SUSTAINABLE DURUM WHEAT CHAIN
FOR FOOD SECURITY AND HEALTHY LIVES



Bologna - Italy, 19-21 September 2018

P.6.48

THE EFFECT OF ACORN (*QUERCUS ILEX*) FLOUR ADDITION TO PASTA QUALITY

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The aim of the present study was to evaluate the effect of Tunisian *Quercus ilex* acorn flour incorporation on pasta quality. Durum wheat semolina was substituted with 10, 20 and 30 g/100 g of acorn flour. Cooking quality including optimal cooking time, swelling index and cooking loss of pastas were evaluated. Proximal analysis and sensory evaluations were performed on the produced pastas and acorn flour. In this regard, the obtained results on acorn flour characterization showed that acorn flour was a rich source of carbohydrates (46%), lipids (10 %) and proteins (8 %). Also, acorn flour had high total phenolic and total flavonoid contents (232.56 mg GAE/g DM and 7.08 mg CE/g DM, respectively). Moreover, methanolic extracts of acorn flour exhibited remarkable DPPH radical scavenging activity with IC₅₀ values (296 µg/ml). The results demonstrated that pasta with acorn flour had decreased cooking time, increased cooking loss percentage and luminosity value compared with semolina control pasta (0% acorn flour). Pasta with 30% acorn flour demonstrated the lowest gluten content and the highest ash content. In conclusion, the addition of acorn flour has proved to increase the functional benefits of the pasta.

Keywords: Acorn flour, durum wheat semolina, cooking quality, DPPH radical scavenging activity.