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Phenolic contents, sensory characteristics and consumer acceptability of pasta made with sprouted and non-sprouted chickpea flours

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Statement of the Problem: Research has shown phenolic antioxidants to possibly be highly beneficial to human health, and research has also shown that germination of crops may improve their antioxidant potentials. However, for many food crops, including chickpeas, the effects of sprouting on nutritional profile and sensory qualities have not been thoroughly examined. Chickpea flour has recently gained popularity as a substitute for wheat flour in pasta and other products. This study examined pasta made from the flour of both non-sprouted and sprouted chickpeas for their Total Phenolic Contents (TPC), consumer acceptability and sensory characteristics.

Methodology & Theoretical Orientation: Flour was made by either grinding dry chickpeas (non-sprouted chickpea flour; NSCF), or by grinding chickpeas that had been submerged in water and incubated for six days for sprouting (sprouted chickpea flour; SCF). These flours were assessed for TPC in triplicate. These flours were also mixed with semolina flour at levels of 0%, 20% and 40% and prepared into pasta. The pasta samples were evaluated for consumer acceptability (n=108), and for descriptive quality characteristics by a trained panel (n=8).

Findings: TPC values were significantly higher for the SCF samples than for the NSCF ($p < 0.05$). Pasta samples with SCF and NSCF were found to have significantly lower "Pasta Flavor" than that made with 100% semolina ($p < 0.05$), but none of these samples were found to be significantly worse than 100% semolina in overall acceptability.

Conclusion & Significance: The sprouting of chickpeas may improve their health benefits, and the results suggest that incorporation of sprouted chickpea flour into pasta at levels as high as 40% produces an acceptable pasta product.

Biography

Adrian L Kerrihard is an Assistant Professor of Food Science at Montclair State University in New Jersey. His research background is in food stability, chemical analysis, sensory evaluation, and mathematical modeling. His more recent work has focused on food processing variables and how these relate to flavor chemistry outcomes and nutritional attributes.

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