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## Effect of carboxymethylcellulose and guar on sensory quality of spaghetti enriched with lentil

Antonella Pagliaro<sup>1,2</sup>, Lucia Padalino<sup>2</sup>, Carla Sillitti<sup>1,2</sup>, Rosaria Bognanni<sup>1,2</sup>, Amalia Conte<sup>2</sup>, Maria Grazia Melilli<sup>1</sup> and Matteo A Del Nobile<sup>2</sup>

<sup>1</sup>CNR - ISAFOM, Italy

<sup>2</sup>University of Foggia, Italy

**Statement of the Problem:** Pasta is traditionally made with only durum wheat, but it is possible to incorporate other flours or ingredients into pasta to improve its nutritional value. Among nontraditional raw materials, legumes represent an interesting source of proteins, fibres, vitamins and minerals. The purpose of the study was to improve the rheological and organoleptic characteristics of pastas enriched with lentil flour using carboxymethyl cellulose sodium salt (CMC) and Guar seeds flour (Guar).

**Methodology & Theoretical Orientation:** In a randomized experimental scheme, we have studied pastas produced with 40% (w/w) of lentils (1), 40% (w/w) of lentils + 2% CMC (2), 40% (w/w) of lentils + 2% Guar (3) and a control with commercial durum wheat (CTRL). On the fresh and dry pastas, raw and cooked, we evaluated the color indices L\*, a\*, b\* (Minolta colorimeter, CR 400), sensory analysis after cooking (panel group) and cooking quality analysis.

**Findings:** The results of color parameters are influenced by the addition of lentil flour, leading to the formation of products with L\* at an average of 30 vs. 60 of the control. The use of CMC and Guar has improved the taste and the overall quality of pastas "2" and "3" vs. the pasta "1" and these two pastas ("2" and "3") were not statistically different from the absolute control. The cooking quality analysis shows that cooking losses and water absorption were decreased using CMC and Guar.

**Conclusion & Significance:** The appreciability of the final products enriched with 40% of lentil flour and the addition of CMC and Guar makes possible the production of these pastas on a larger scale, allowing an easier consumption of legumes, that have cholesterol-reducing and hypoglycemic properties.

### Biography

Antonella Pagliaro is a PhD student in Health Food Innovation and Management of Foggia University. She works at CNR-ISAFOM in Catania. She has a graduation degree in Biological Science (2012) and a Master's degree in Health Biology (2014). Now she is working on new types pasta that have the potentiality to decrease cholesterol and fight obesity, using different cultivars of durum wheat, added with biomolecules extracted from typical Sicilian germplasm and using mixture of other cereals, rich in  $\beta$ -glucans. The project wants to solve technological problems to obtain the new types of pasta, evaluating the effect of the addition on the rheological properties of the dough, the organoleptic properties of fresh and dry pasta obtained and the nutraceutical properties of the final products.

antonella.pagliaro@isafom.cnr.it  
antonella.pagliaro@unifg.it

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