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Use of Sicilian ancient durum wheat for the production of low-GI spaghetti

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Statement of the Problem: The ancient Sicilian whole meal grains, re-evaluated as the basis of the Mediterranean diet, are rich in fiber and vitamins and matched the inulin consumption contribute to lower the glycemic index of pasta produced, representing a good source of carbohydrates for diabetics. Currently the inulin added to foods is extracted from chicory (~20 fructose units). The aim of the study was to evaluate the quality of pasta obtained by ancient Sicilian whole grains semolina with inulin extracted from roots of cardoon (~80 fructose units).

Methodology & Theoretical Orientation: Four cvs of whole meal flour durum wheat (Russello, Senatore Cappelli, Margherito and Timilia) were used for the production of spaghetti with 2 types of inulin extracted from roots of both chicory and cardoon, in 2 and 4% (w/w). A commercial durum wheat semolina was used as a control. Pastas produced were evaluated for color (Minolta colorimeter CR, 400), cooking time (minutes), quality and loss of inulin (HPAEC-PAD, Thermofisher) in cooking and sensory qualities (Panel).

Findings: On average of 4 varieties, the overall quality of the spaghetti was 6.5 compared with 5.9 of the control. The values increased with the addition of 2% (w/w) of inulin, in fact the cv "Russello" and "Senatore Cappelli" showed values of 6.8 and 6.6 respectively, compared with the control (6.5). With the highest concentration of inulin showed highest interaction with the cv used. "Margherito", "Timilia" and "Senatore Cappelli" showed higher values with cardoon inulin, although "Russello" and "Senatore Cappelli" decreased their values with the addition of chicory inulin. On average of 4 varieties, the addition of inulin from cardoon resulted in an increase in the index L*, perceived positively during the panel test. Different types of semolina have influenced mainly the cooking loss.

Conclusion & Significance: Further tests are underway to define the optimal concentration of inulin to add and the best type of semolina to use.

Biography

Carla Sillitti is a PhD student of the University of Foggia. She is carrying out her PhD work in collaboration with CNR-ISAFOM in Catania. She has completed her Master's in Health Biology. She is developing a project to produce new nutraceutical food, a type of pasta, based on the use of ancient Sicilian whole meal and inulin. Many studies were carried out to define the best type of semolina and inulin to be added. She is interested in nutraceutical food and food quality, as well as nutrition and human health.

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