Projeto Blends – PA4 - Apresentação de trabalho em Congresso EGEA 2015 – Milão – 3 a 5/jun/2015.

Avaliação do efeito da tecnologia de alta pressão em compostos bioativos em suco tropical misto.

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MaestraNatura®: a new tool for nutrition education

Eating behavior develops in response to personal characteristics and genetics as well as physical and social environments. School plays a pivotal role in promoting health and preventing obesity. Although a number of expensive educational programs have been carried out in the last few years in Italy, evidence for the real effectiveness of those school-based programs is quite equivocal. Moreover, contrary to the international literature suggestions, a very limited involvement of parents in these programs have been observed.

The objective of our work was to design and implement a new methodology able to fill the gaps in children knowledge on nutritional issues together with increased engagement of the families. In particular, we aimed at extending correct knowledge about the origin and function of different food and at using food as a tool to strengthen the relationship between children and parents.

As preliminary step, in order to fulfill these objectives, we carried out a survey in 25 primary and intermediate schools of Rome. First of all, we interviewed 200 teachers to know if and how nutritional issues had been presented to the students. We found that the teachers considered these topics very relevant and dedicated about 4 hours/year to food pyramid-based nutritional program. Secondly, we administered a questionnaire to 3400 children (7-12 years) to evaluate their knowledge on food and nutrition.

Results showed a high grade of confusion and misunderstanding and allowed us to elaborate 8 educational and experimental modules (150 hours) specifically aimed at filling those gaps. The didactical content were distributed by a web platform, which also allowed a complete traceability of both school and home activities. Data collected in the first year of experimentation are reported.

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Evaluation of the effect of high pressure technology on bioactive compounds of a mixed tropical juice

High pressure technology is recognized as a mild treatment that best preserves nutritional and sensory characteristics of fruit juices as they do not use high temperatures. Fruit juices consumption is no longer a result of taste and personal choice, but it has become a concern of health due to their nutrient content. The aim of this work was to evaluate the effect of the processing conditions (pressure and time) of high pressure technology on the bioactive compounds (vitamin C, total phenolics) and antioxidant activity of a mixed tropical juice.

The mixed tropical fruit juice was constituted of acai, acerola, yellow mombin, cashew apple, camu-camu and pineapple, added with water and sucrose. The product presented high content of bioactive compounds like vitamin C (118 mg/100g) and total phenolics (250 mg/100g) and 9 µg/g Trolox of antioxidant capacity. For processing, the mixed juice was packed in plastic bags and submitted to isostatic pressure in hydrostatic high pressure equipment. As experimental design, it was employed a two central composite rotational design (2^2) where pressure varied from 159 to 441 MPa. In experiment I, processing time varied from 5 to 19 minutes and in experiment II the time range was 2.5 to 13.5 minutes. The vitamin C and total phenolic contents, as well as the antioxidant activity were determined by standard methods.

The results were evaluated by variance analysis and they showed that either vitamin C or phenolic contents, as well as antioxidant activity of the tropical blend, were not affected ($p<0.05$) by the parameters employed (pressure and time). This suggests that high pressure is a suitable technology for conservation of fruit juices in the studied range of process conditions.

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