UNIVERSITÀ DEGLI STUDI DI UDINE
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FORMULATION AND PROCESSING STRATEGIES FOR OBTAINING BAKERY PRODUCTS TAILORED TO THE ELDERLY'S NEEDS

Development of pea protein-rich bread intended for the elderly

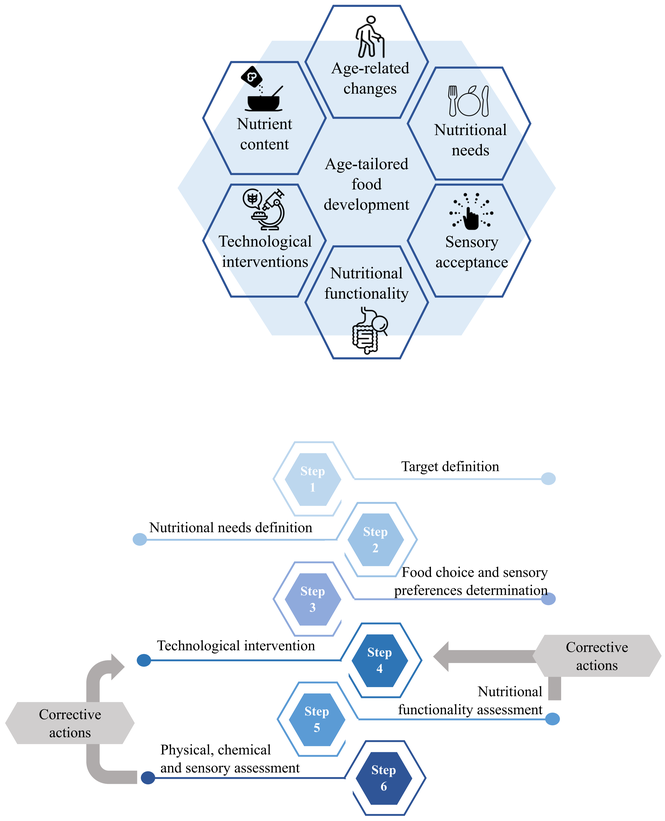

Fig. 1. Multi-step integrated approach.

AIMS:

For the first time in history, the elderly population is growing worldwide and the number of the elderly (> 65 years) is predicted to increase to 2 billion by 2050. Nutrition plays a critical role in modulating the development of many age-related physiological changes and diseases. The aim of this Ph.D. project was to design a food (*i.e.*, bread) tailored to the elderly's needs that might fulfil nutritionally balanced diets, to promote active and healthy ageing, by applying a "multi-step integrated approach" (Fig. 1).

APPLICATIONS:

Food consumption and dietary patterns are recognized as pivotal factors in promoting an active and healthy ageing. At this regard, the need to develop age-tailored food for the elderly is becoming increasingly pressing. Aging can bring about physiological and socio-economical changes that can impact nutritional needs and food preferences of the elderly. Tailoring foods to meet the specific nutritional needs of different age groups can help ensure that people are getting the nutrients they need to stay healthy.

RESULTS:

A protein-enriched bread was developed by applying the approach in Fig. 1. The desirable sensory properties that an ideal bread targeting the elderly should have were identified as: homemade appearance, bread odor and flavor, and crumbly and soft texture. Based on these results and protein requirement of the elderly, bread with pea proteins, either untreated or high pressure homogenization-treated (HPH), was processed. Results showed that pea proteins led to improving the nutritional quality of the bread, and HPH processing shaped the functionalities and digestibility (Fig. 2a) of bread. The developed bread was well-accepted compared to commercial bread by the elderly (Fig. 2b). This Ph.D. thesis allowed taking a small step forward in tailoring food products able to satisfy the elderly nutritional requirements and to promote active and healthy ageing.

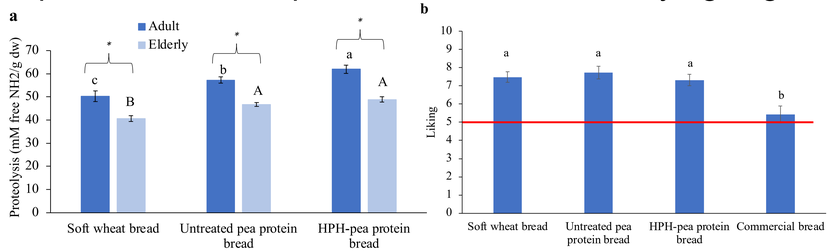

Fig. 2. Digestibility (a) and liking (b) of soft wheat, untreated and HPH-treated pea protein bread