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EFFECTS OF OPUNTIA FICUS-INDICA CLADODES IN FUNCTIONAL BREAD MADE WITH SICILIAN DURUM WHEAT LANDRACES

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In Mediterranean countries, durum wheat is also used for production of handmade traditional breads. Specific interest was aroused by the use of some old durum wheat landraces that represent a valuable source of biodiversity. Some of these genotypes are still used in Sicily for the production of typical breads. Recently, the growing consumer interest in qualitative aspects of food products has driven the market towards healthier and nutrient-rich products. In Sicily, prickly pear (Opuntia ficus-indica (L.) Mill.), a succulent plant belonging to the family Cactaceae, native to Mexico but naturalized throughout the Mediterranean basin, is located. This plant produces cladodes which over the years have been the subject of numerous scientific studies that have contributed to characterize both the bioactive component content and their biological effects, associated with reduced risk of chronic diseases. The aim of this study is to obtain a typical Sicilian bread but enriched with Opuntia ficus-indica cladodes, used as a new functional ingredient for enhancing nutraceutical properties of durum wheat bread. In this work, two durum wheat Sicilian landraces (Timilia e Perciasacchi), compared with one commercial semolina, and Opuntia cladodes harvested in Sicily were investigated. In the caryopsis of durum wheat genotypes, the grain storage proteins were characterized by SDS-PAGE electrophoretic patterns of low molecular weight (LMW) and high molecular weight (HMW) glutenin subunits. In cladodes of Opuntia, total phenolic and DPPH scavenging activity (%) were detected. Each durum wheat genotype and the mixture of each of them with cladodes powder were evaluated for rheological and technological parameters and breadmaking test was performed. The results of the electrophoretic characterization showed variability among studied genotypes. Cladodes of Opuntia showed a good total polyphenol content linked to the DPPH scavenging activity. The experimental breads, obtained with 5% cladodes powder, subjected to sensory analysis, has been pleasant to taste.