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Microbiota and key technological features of naturally fermented *Crithmum maritimum* sprouts

Crithmum maritimum (sea fennel) is a halophyte plant that grows spontaneously along the Italian East coasts; it is equipped with adaptive mechanisms that enables it to complete its entire life-cycle at high salinity and hence to generate economic yields although exposed to salt stress conditions. Its valuable nutritional and functional traits (i.e. high content in C vitamin, flavonoids, polyphenols, etc.) makes this blue source a sustainable and economically valuable opportunity for industrial manufacturing/commercialization of high value products. Currently, sea fennel is only marginally exploited by few artisan or semi-industrial enterprises for manufacturing of unfermented preserves in brine or olive oil, pesto-like sauces, fresh-cut and semi-finished products and no fermented preserves are commercialized, yet in either national and international markets. Given these premises, this research was aimed at exploiting Italian sea fennel cultivars, with a high adaptation to adriatic climates, high nutrients density and unique functional properties, for the production of fermented sea-fennel based preserved. To this end, the microbiota dominating during the natural fermentation of sea fennel sprouts in brine was monitored by using culture-dependent (viable counting, isolation of pure cultures) and independent microbiological methods (PCR-DGGE and next-generation sequencing). In parallel, the main technological parameters of the fermented sea fennel sprouts (pH, TTA, lactic acid and acetic acid content, C vitamin content) and the isolated lactic acid bacteria cultures (acidifying activity, CO₂ production, etc.) were also investigated. As a result, the main lactic acid bacteria species guiding the fermentation were identified, isolated and preliminary characterized.

Biography

Lucia Aquilanti has completed her PhD in Applied Biomolecular Sciences from Marche Polytechnic University, Italy in 2005. She is currently working as an Associate Professor in the Department of Agricultural, Food and Environmental Sciences of Marche Polytechnic University on numerous research topics, including the microbial dynamics of naturally fermented foods and the selection of starters or adjuncts for the manufacture of fermented products. She has published 69 papers in international peer-reviewed journals (indexed scopus and wos) and has been serving as an Editorial Board Member of a number of reputed international peer-reviewed journals.

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