

Title A three-year highbush blueberry survey in different European locations for the fresh and the processing markets

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Abstract

All over Europe the demand for blueberry is increasing. To optimize the cultivar choice for different production systems, a survey of horticultural quality traits was conducted from 2004 to 2007 in three different locations in Europe: Northern Italy, Poland, and Romania. The aim was to explore the variability among the different accessions and select the genotypes having the best features for fresh market or for processing. The genotypes evaluated and characterized were commercial varieties, less known accessions from the Romanian site, and advanced selections. Reproductive traits for plant propagation and indoor nursery-production systems were assessed. Also the concentrations of total polyphenols and total anthocyanins in the berry were detected at ripeness in relation to the years and environments. Furthermore, innovative processed products were studied to develop a new line of healthy drinks that meet the consumer expectations: different formulations based on mixes of fresh squeezed juices without thermal treatments were set up and tested by consumer science techniques. Stable isotope ratios of the different blueberry varieties were also preliminarily explored to determine their variability and their possible use to guarantee the genuineness, geographical origin, and production systems. Molecular tools, in particular SSR marker, were used to obtain valuable ways of fingerprinting berries; while the use of primers - designed on large sub-unit of ribulose biphosphate carboxylase gene (*rbcL*) and on anthocyanidin synthase gene (*ANS*) sequences - allowed to develop a method of traceability of blueberry fruits in commercial processed products like juices, yogurts, jams and baby food to guarantee authenticity.