

Proteolysis and flavor characteristics of Serrano ham processed under different ripening temperature conditions

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Abstract

Abstract: Physicochemical, proteolysis and sensory characteristics of Serrano hams processed under low, medium and high ripening temperature conditions (RTC), with respective average temperatures of 9.3, 14.3, and 19.1 °C, were determined throughout a 15-month period. In addition, quantitative relationships among variables were calculated. Medium and high RTC hams showed lower moisture contents and lower levels of low- and high-ionic-strength soluble proteins than low RTC hams. At 15 mo, aldolase was the most abundant low-ionic-strength soluble protein and actin the most abundant high-ionic-strength soluble protein in all hams while creatine kinase was no longer detected and H-meromyosin was detected only in low and medium RTC hams. Levels of all the molecular-weight peptide fractions increased during ripening, with higher factors of increase for the fractions of lower molecular weight. Total free amino acids were at significantly higher concentrations in medium and high RTC hams than in low RTC hams from month 7 onwards. The correlations of flavor preference and flavor intensity with ripening time, thermal integral, total free amino acids and most individual free amino acids were highly significant, while raw-meat taste was negatively correlated with all those variables. From month 5 to month 9 of ripening, development of a high quality flavor evolved more rapidly in medium RTC hams, flavor intensity increased at a faster rate in high RTC hams and raw-meat taste declined more rapidly in medium and high RTC hams. Medium and high RTC may be applied to accelerate the ripening process of Serrano ham without impairing flavor preference.

Practical application: Medium and high ripening temperature conditions (RTC) may be applied to Serrano ham in order to enhance the phenomena associated with ripening, without loss of product quality. Moisture loss, degradation of proteins and formation of free amino acids were accelerated in medium and high RTC hams. From month 5 to month 9 of ripening, development of a high quality flavor evolved more rapidly in medium RTC hams, flavor intensity increased at a faster rate in high RTC hams, and raw-meat taste declined more rapidly in medium and high RTC hams.