

Use of Mixed Tocopherols, Celery Concentrate and Starter Cultures to Produce Organic and Conventional Dry-Fermented Sausages: Oxidative Stability and Quality Characteristics

Núria Magrinyà, Ricard Bou, Mercedes Alemán and Francesc Guardiola,
Nutrition and Food Science Department, XaRTA-INSA. Faculty of Pharmacy, University
of Barcelona, Barcelona, Spain

Current European guidelines for the production of both organic and conventional dry-fermented sausages govern the maximum nitrate and nitrite amounts that can be added and also the residual nitrate and nitrite amounts that can contain these meat products. In this work, sausages were made of organic pork meat and a factorial design was used to study the effect of the addition to the sausage mix formula of mixed tocopherols (0 and 200 mg/kg), two starter cultures (typical commercial starter culture or the same starter culture plus *Staphylococcus carnosus*) and 4 different sources of nitrate (either chemical grade KNO_3 or celery concentrate providing 70 and 140 mg of nitrate/kg expressed as NaNO_3) on sausages oxidative stability and overall quality after being ripened and being stored 45 days under a modified atmosphere at 4 C. The oxidative stability and overall quality of dry-fermented sausages were assessed through residual nitrate and nitrite amounts, instrumental CIE Lab colour, tocol content, primary and secondary oxidation products, susceptibility to oxidation and consumer acceptability. Results showed that dry-fermented sausages from a formula with added tocopherols showed better oxidative status and decreased susceptibility to oxidation. This enrichment also influenced colour, providing increased brightness and red colour which are important quality parameters of meat products. The addition of *Staphylococcus carnosus* culture caused a very efficient reduction of residual nitrate without affecting TBA values and lipid hydroperoxides. Despite the addition of celery concentrate and other ingredients to dry-fermented sausages, consumers showed no dislike for any of them. Therefore, the replacement of chemical grade nitrate source by celery concentrate is a useful strategy for organic production and, at the lower dose, does not affect colour formation or any other parameter, when compared with the conventional procedures.