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Red wine in cured Bísaro pig ham to minimise salt content and improve physico-chemical attributes

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Bísaro pig is a local breed located mainly in the North of Portugal. For obtaining high quality traditional products from this breed, the present work aims to develop a pork ham with low salt content, evaluate chemical, colorimetric and texture indicators and compare with the traditional ham manufacture. For this study, 30 Bísaro animals were subjected to the same semi-extensive production system. All animals were slaughtered with live weights of 120.53±13.12 kg at 287.86±14.97 days of age. The hams were removed from the left side of each carcass and were divided into two groups. In the control group, the pork hams were manufactured by a traditional method (n=14). In a second group (n=14) red wine was added during the manufacturing process. After the manufacture period of thirteen months all hams were analysed. There was no significant difference in pH, moisture, protein, fat and minerals. However the salt content (% NaCl w/w), TBARS (mg MDA/kg) and water activity values of pork ham manufactured with the addition of red wine were reduced compared to the control group (P<0.017 and P<0.001). Addition of red wine increased the redness value in the hams from the innovative process (P<0.001) compared to the control group. In texture profile values of shear force, brittleness, gumminess and adhesiveness, there was no significant difference. In conclusion, the addition of red wine during ham manufacture showed the effect of increasing the quality of product, mainly the parameters related to low salt content and oxidation index, with focus on anti-oxidant activity of red wine. This innovative manufactured ham may represent an alternative to the traditional form of ham production.

Effect of NaCl replacement by KCl and SubSalt4 on the mineral content of pork meat sausages

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This work aimed to evaluate the effect of NaCl reduction and substitution by KCl and SubSalt4 on the mineral content of pork meat sausages with 4 different salt formulations (Form1: 2% NaCl, Form3: 1.5% NaCl+0.5% KCl, Form4: 1.5% Sub4 salt+0.5% NaCl, Form5: 0.5% Sub4 salt+1.5% NaCl) and two ripening times. The quantification of mineral elements (Na, K, Ca, Cu, Zn, Fe, P and Mn) was performed by inductively coupled plasma-optical emission spectroscopy (ICP-OES). Three repetitions and two replicas of the experiment were made for each type of sausage. Statistical analysis was performed using the statistical package JMP Pro 11.1.1 by Copyright © 2013 SAS Institute. Main effects (salts treatment, ripening time) and interaction were tested as fixed effects and the random effects of repeated measurements (3) of individual sausage and two replications. Results show a significant increase in the minerals' content with ripening time increase. The NaCl reduction and substitution by KCl promoted a higher Na reduction than SubSalt4, and the total substitution of NaCl by KCl and SubSalt4 had the highest reduction in this mineral. Also, significant differences were found in Ca, K and P. The partial or total Na replacement did not affect the ripening process once there are no significant differences between treatment for water activity (a_w), it was around 0.91 and 0.84-0.87 for the ripening periods. The ashes content, between 4 and 6% of the sample, was not affected by the different treatments.