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CALCIUM AND MAGNESIUM CONTENT IN BOILED SAUSAGES FROM THE SERBIAN MARKET

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Meat and meat products present a significant part in the human diet. In terms of their composition, they are rich in bioactive macro elements such as calcium (Ca), magnesium (Mg) and potassium (K), and the essential elements iron (Fe), copper (Cu), zinc (Zn), selenium (Se), and manganese (Mn). Macro- and micro elements are very important and necessary for adequate physiological functions of the human body and should be available through dietary intake. Mg is an essential nutrient for the human body, which is required for many physiological functions and has an important role as an enzymatic cofactor of more than 300 enzymatic reactions. Ca is also an essential macronutrient for humans which represents approximately 98% of the bones weight and 2% of body weight in an adult person. Calcium metabolism have role in in the control of some health issue (blood pressure, colon cancer, etc.).

Meat processing in Serbia have a long tradition. The most popular meat products are fresh or smoked pork and beef, as well as poultry. At the same time, different meat products such as different types of sausage are widely spread through all chains of supermarkets in the Balkan region. This study provides original analytical data on the levels of Ca and Mg in two types of boiled sausages (finely ground boiled sausages, FS, n=33 and coarsely ground boiled sausages, CS, n=30) which are commonly consumed in Serbia. Samples of boiled sausages were purchased from Serbian retail markets in the first half of 2023. The levels of Ca and Mg in meat products were determined by inductively coupled plasma mass spectrometry (ICP-MS). The mean levels of Ca in finely ground boiled sausages (607.6 mg/kg) in the current study were statistically higher than the mean levels measured in coarsely ground boiled sausages (318.4 mg/kg), ($p < 0.05$). The mean Mg levels in two types of boiled sausages were not statistically different (163.8 mg/kg – FS, 181.9 mg/kg – CS). Significantly higher Ca levels in finely ground boiled sausages could be explained by use mechanically separated meat (MSM) for their production. Namely, MSM is a raw material which is widely used in the meat industry, obtained during the cutting and deboning of gutted poultry carcasses and their parts. Therefore, higher Ca levels in MSM and consequently in meat products may be due to the presence of residual bones in MSM. According to the Serbian regulation on the quality of minced meat, semi-produced meat and meat products, MSM may be used for production both finely and coarsely ground boiled sausages and it must be subject to declaration of the product. Produsing practice in Serbia is such that MSM mostly used in higher amount in finely ground boiled sausages, which was confirmed by the declarations of the analyzed products.

Keywords: calcium, magnesium, boiled sausages, mechanically separated meat, Serbia

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