

Determination of Nitrate and Nitrite Concentrations in Commercially Available Sausage Products from Small-Scale Retailers in Kandy Area

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Nitrates and nitrites are found in many foods which people may consume on a daily basis. In processed meat products, nitrate and nitrite salts are widely used as preservatives, antioxidants, flavor enhancers and color stabilizing agents. But the presence of excessive nitrates and nitrites can have toxic and carcinogenic effects on humans. Hence, the concentrations of nitrates and nitrites in food need to be monitored to ensure the quality and safety of meat products. This study was aimed to investigate the Nitrate and Nitrite content of frequently consumed sausage samples in Kandy area. The samples were collected from 10 different small-scale retailers' stores and supermarkets in the area, over a period of 7 months from May, 2018 to November, 2018. To determine the nitrate and nitrite concentrations, Suppressed Ion Chromatographic (IC) technique was used following the extraction and protein precipitation procedures. According to the results obtained, the average nitrite and nitrate concentration levels in small-scale retailers' uncooked samples were 60-85 mg kg⁻¹ and 90-150 mg kg⁻¹, respectively. Average nitrite and nitrate levels in small-scale retailers' cooked samples were 55-75 mg kg⁻¹ and 70-105 mg kg⁻¹, respectively. For selected branded samples nitrite and nitrate levels were 40-55 mg kg⁻¹ and 60-80 mg kg⁻¹, respectively. According to the results, for small-scale retailers' uncooked samples, nitrate levels exceeded the acceptable nitrate levels according to the Sri Lankan standards (125 mg kg⁻¹). These excessive levels of nitrates, can act as a reservoir for nitrites. Therefore, it is necessary to regulate nitrate and nitrite levels in sausage products manufactured by small scale retailers in Kandy area.

Keywords: Nitrate, Nitrite, Ion chromatography, Sausages