Effect of Inulin as a Fat Replacer on Quality Traits of Chicken Sausages

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Inulin is a non-digestible carbohydrate which can act as a fat replacer in various foods. Garlic bulbs are known as a rich source of inulin. This study was conducted to review the effect of replacing vegetable oil with garlic inulin on the quality traits of chicken sausages. Inulin powder was prepared using garlic bulbs by hot water extraction, vacuum evaporation and spray drying. Chicken sausages were prepared using lean chicken meat with varying percentages (1%, 2% and 3%) (w/w) of garlic inulin or commercial inulin gradually replacing vegetable oil. Control was prepared using 3% (w/w) vegetable oil with no inulin. Physicochemical and sensory properties, microbial quality and TBARS value of prepared sausages were analyzed over a one-month under frozen storage. Sausages with 2% garlic inulin showed higher overall acceptability compared to all other samples (p<0.05). Ash, moisture and protein contents of the sausages were increased with the increasing level of inulin while, fat content was reduced from 13.67% to 4.47% (p<0.05) in 3% inulin incorporated product. Inulin incorporated sausages had lower lightness (L*) values than the control (p<0.05). Water holding capacity was not significantly (p>0.05) different among the samples. Cooking loss of inulin added samples were lower than the control (p<0.05). During storage L* value, pH, water holding capacity reduced while, redness (a*) and yellowness (b*) values and cooking loss increased in all the samples. In addition, no Salmonella and Escherichia coli were detected in any sample while, total plate count and TBARS values were increased during the storage in all samples within the acceptable limits. As conclusion, inulin can be successfully used as a fat substitute in sausage production.

Keywords: Garlic, Meat quality, TBARS, Salmonella, Fat substitute

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