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Title: Effect of Water Activity on the Physico-chemical, Microbiological and Sensory Qualities of Buffalo Meat Sausage Stored under Ambient Temperature[†]

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Source: American Journal of Food Technology 1 (2): 166-172, 2006

Abstract: The study was undertaken to find the effect of water activity on buffalo sausage quality and storage stability at ambient temperature. Water activity (a_w), temperature and pH have been identified as the three primary factors controlling microbial growth. The water activity of the buffalo meat sausage (treated) was adjusted to 0.88 by addition of humectants viz., salt, sugar, ISP, HVP, sodium lactate and subsequent heat treatment while the a_w of the untreated sausage was 0.932. Tyrosine value showed a significant increase throughout the storage periods. There was a marked but not significant decrease in the TBARS number of the treated samples. On 5th day, the TBARS value of the treated sausages exceeded the threshold limit of 2 mg kg⁻¹ resulting in the spoilage. The treatment had a significant inhibitory effect on the TVC, Staphylococcal count and Streptococcal count and anaerobic count. Whereas in case of coliform and yeast mould count it had no significant effect. On the third day of storage the flavour and texture, juiciness and over acceptability scores were well within the acceptable range. Whereas in the case of untreated samples there was a slime formation and off odour development on the 3rd day of storage. Although the sensory score (over all acceptability) of the treated samples were scored less ($p>0.05$), the product was acceptable upto 3rd day storage whereas the untreated samples spoiled after 1st day of storage.

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