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Comparative study of natural preservatives and synthetic preservatives as a hurdle parameter on organoleptic and textural characteristics of buffalo meat pickles

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Meat pickles were developed from deboned meat from Murrah buffalo carcasses (10 years of age). The untreated control as well as the meat pickles treated with 2% each of cinnamon, clove, turmeric, garlic, 0.025% of potassium sorbate and 0.02% sodium nitrite were developed in soybean oil medium. However, the mustard (2%) and acetic acid (6%) treated meat pickles were developed in their own mediums. The pickles were preserved in glass and HDPE jars and evaluated for changes in organoleptic characteristics at 9-point hedonic rating scale at interval of 20 days in 120 days shelf life. In all cases the pickles were in edible condition even after 120 days storage at ambient temperatures. The pickles treated with all natural and synthetic preservatives resulted in the products, which were placed in the range of 'neither liked nor disliked' to 'extremely liked' for various sensory characteristics viz. taste, colour, odour, texture and palatability. Glass jar proved better than HDPE jar in retaining the colour of pickles during storage. The odour scores of pickles increased significantly with storage period. All pickles except acetic acid treated pickles were rated as 'liked very much' on odour scores at the end of storage study. Mustard and clove treated pickles were most liked while turmeric and acetic acid treated pickles were least liked. In textural analysis the pickles packed in HDPE jar had slightly lower hardness values as compared to glass jar packed pickles. Maximum decrease in cohesiveness during storage was observed in case of clove (decreased by 1.98) followed by acetic acid treatment. Maximum reduction in gumminess of acetic acid treated pickles (by 0.67 and 0.68 g) was noted during 120 days storage in HDPE and glass jars, respectively.

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