EVALUATION OF CHEMICAL, PHYSICAL, MICROBIAL AND SENSORY PROPERTIES OF GARLIC BUTTER BY USING COW MILK

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ABSTRACT

Butter is a popular dairy product composed of mainly milk fat and other minor components such as water, vitamins, enzymes and minerals which beneficial for health. The aim of this present study was to investigate the effect of garlic (*Allium sativum*) powder addition on the chemical, physical, microbial, sensory properties of butter, incorporated with garlic the rate of 2% garlic chips and 2% garlic powder (w/w) and 2% garlic chips and 4% garlic powder (w/w). Butter samples were analyzed for physical, chemical, microbial and sensory properties during refrigerated storage at 7 °C. The physico-chemical (moisture, total solids, fat, free fatty acids, titratable acidity, pH), microbial and sensory characteristics (texture, taste, mouth feel, after taste, appearance, colour, aroma and overall acceptability) were analyzed, at day 1, week 1, week 2, week 3, week 4, week 5, week 6 and week 7 of storage.

Moisture, total solids, fat, free fatty acids, titratable acidity and pH were significantly difference (p<0.05) among the treatments at day one. The results of this study revealed that, the moisture (14.09±0.10%) and total solids (85.91±0.10%) content were significantly (p<0.05) higher in butter without incorporated garlic chips and powder. Fat content (80±0.00%) was significantly (p<0.05) lowest in butter incorporated with 2% garlic chips and 4% garlic powder. And free fatty acids was significantly (p<0.05) highest in butter incorporated with and 2% garlic chips and 4% garlic powder and lowest in butter without added garlic chips and powder. pH (6.09±0.03%) was significantly (p<0.05) lowest in butter incorporated with 2% garlic chips and 4% garlic powder. And titratable acidity (0.13±0.02%) was significantly (p<0.05) lower in butter without added garlic chips and powder. 2% garlic chips and 4% garlic powder added butter showed the highest (48.75±1.18) antioxidant activity.
During storage, the pH value was significantly (p<0.05) decreased and fat content and hardness of butter was not significantly (p>0.05) different during 7 weeks of storage period. pH content was significantly (p<0.05) decreased and titratable acidity was increasing with the storage period. During storage period of 7 weeks, the cohesiveness, gumminess and springiness were significantly (p<0.05) increased. 2% garlic chips and 4% garlic powder treated samples showed the lowest yeast/mould and coliform counts. Organoleptic properties were evaluated through the panel of 30 members. As a result of organoleptic characteristics revealed that, 2% garlic chips and 4% garlic powder added butter had the highest mean score of overall quality of all sensorial properties namely, texture, taste, mouth feel, after taste, appearance, colour, aroma and overall acceptability. Results revealed that most of the panelist accepted, which butter made from 2% garlic chips and 4% garlic powder than other types of butter.
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