The Pharma Innovation Journal 2022; SP-11(10): 833-834

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(10): 833-834

www.thepharmajournal.com
Received: 28-08-2022
Accepted: 30-09-2022

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Effect of cooking methods on colour and textural properties of chicken patties

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Abstract
The effect of cooking methods on colour and textural properties of chicken patties were analysed. Two methods of cooking was done in chicken patties. Among the pressure cooked and microwave oven cooked patties parameters like colour and texture were analysed. The cooking methods had significant difference in colour and textural properties of chicken patties. The results suggest that microwave oven cooked patties had better colour and textural properties than pressure cooked patties. So, microwave oven cooking is better method of cooking.

Keywords: Chicken patties, pressure cooked patties, microwave cooked patties, chicken patties colour and texture profile analysis

Introduction
Cooking has been considered as a very critical step in the preparation of food products affecting organoleptic properties, nutritive value thus consumer acceptance (Singh *et al*., 2012) [4]. The cooking techniques have influence on quality characteristics of meat products (Pathera, 2017) [2]. The aroma, flavor, colour and palatability of hot air oven cooked products were found to be better and more acceptable as compared to microwave oven cooked products (Pawar *et al*., 2002) [3]. Therefore, this study was carried out with an objective to analyze the effect of cooking methods on colour and textural properties of chicken patties.

Materials and Methods
Fresh meat was minced with mincer (Model No. TS 12, OMAS Food machinery, Italy using 8 mm plate. Preweighed quantities of minced meat, salt, sodium nitrate and sodium tripolyphosphate were added one by one and mixed. Then ice flakes were also added. Refined vegetable oil was added slowly in between until complete dispersal. Condiment paste, pepper, spice mix, refined flour were added until uniform dispersal of ingredients and desired consistency of emulsion was achieved. The patties were moulded using patty maker machine to obtain a uniform weight of 20 g. The patties were cooked by pressure cooking at 121 c for 30 min and microwave oven for 5 minutes (2450 MHz and 900 W).
The cooked patties were cooled to room temperature and evaluated for colour and texture profile analysis. Colour of both pressure and microwave oven cooked cooked patties were measured using Hunter lab Mini scan XE plus Spectro-colorimeter (Model No. 45/0-L, Reston Virginia, USA. The colour was expressed as L (brightness), a*(redness) and b*(yellowness).
Texture profile analysis was carried out using a Stable Microsystems Texturometer (Stable System Ltd., England, UK) model TX_ HD plus texture analyser attached to a software texture expert system. The texture profile was analysed as per the procedure outlined by Bourne (1978).

Results and Discussion
The lightness (L) of pressure cooked and microwave oven cooked patties were 141.90±2.25 and 132.68±0.98. The redness (a*) of pressure cooked and microwave oven cooked patties were 23.57±0.41 and 25.50±0.77. The yellowness (b*) of pressure cooked and microwave oven cooked patties were 54.62±1.55 and 60.60±1.81. The values of redness (a*) and yellowness (b*) were significantly high in micro oven cooked patties whereas the lightness (L) value was highly significant (p<0.01) in pressured cooked patties.
The hardness of pressure cooked and microwave oven cooked patties were 191601.62±60826.97 and 88426.70±10669.74.

The springiness of pressure cooked and microwave oven cooked patties were 0.6±0.05 and 0.81±0.01. The cohesiveness of pressure cooked and microwave oven cooked patties were 0.28±0.04 and 0.37±0.04. The gumminess of pressure cooked and microwave oven cooked patties were 63326.88±28867.22 and 31163.07±3075.38.The chewiness of pressure cooked and microwave oven cooked patties were 30934.68±11319.19 and 25282.36±2670.26. The resilience of pressure cooked and microwave oven cooked patties were 0.12±0.03 and 0.08±0.01. There was no significant difference in hardness, cohesiveness, gumminess, chewiness and resilience between pressure cooked and microwave oven cooked patties. The springiness was highly significant (p<0.01) in microwave oven cooked than pressure cooked patties.

Conclusion

The cooking methods had significant difference in colour and textural properties of chicken patties. The results suggest that microwave oven cooked patties had better colour and textural properties than pressure cooked patties. So, microwave oven cooking is better method of cooking.

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