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Effect of curry leaves and cumin powder on chemical composition of paneer

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Abstract

The present was carried out in the laboratories of Department of Animal Husbandry and Dairy Science, Dr. PDKV, Akola during the year 2019-2020 with a view to utilize valuable, medicinal, nutritious curry leaves and cumin powder. Paneer was prepared by addition of curry leaves and cumin powder and their combinations in buffalo milk as Control(T₁), 0.2% Curry leaves powder (T₂), 0.4% Curry leaves powder (T₃), 0.2% Cumin powder (T₄), 0.4% Cumin powder (T₅), 0.2% Curry leaves powder + 0.2% Cumin powder (T₆) and 0.4% Curry leaves powder + 0.4% Cumin powder (T₇) with 04 replications. The chemical analysis of paneer showed that, fat and protein content in paneer decreased whereas ash and total solids content was increased and titratable acidity was minutely influenced with increase in level of curry leaves powder, cumin powder and their combinations.

Keywords: Buffalo milk, Curry leaves, Cumin powder, Paneer, Physico-chemical properties

Introduction

Paneer is of great value in diet, especially in the Indian vegetarian context, because it contains a fairly high level of fat and proteins as well as some minerals, especially calcium and phosphorous. It is also good source of fat soluble vitamins A and D. Paneer is a rich source of animal protein available at a comparatively lower cost and forms an important source of animal protein for vegetarians. Over and above its high protein content and digestibility, the biological value of protein in paneer is in the range of 80 to 86 (Shrivastava and Goyal, 2007). The ability of Paneer to be deep fried is one feature that has led to its wider acceptance and a favourite for making snacks, pakoras or fried Paneer chunks. The by-product, "whey" obtained during paneer preparation can be used for kneading flour in the production of bakery products or can be converted into refreshing and nutritious drinks. Curry leaves and cumin have various effects when used in foods. Not only they impart-flavour, pungency and colour characteristics; they also have anti-oxidant, anti-microbial, pharmaceutical and nutritional properties. The spices are used in comparatively small quantities in the food products. These are quite important ingredients, even indispensable, as their presence, even in small quantities does improve the eating qualities of the products, as well as the physical characteristics. In spicy paneer they will not only improve the taste but also improve the shelf life.

Material and Methods

Fresh, clean whole buffalo milk was procured from Livestock Instructional Farm of Department of Animal Husbandry and Dairy Science, Dr. PDKV, Akola and utilized for preparation of flavoured paneer. Good quality of curry leaves was purchased from local market of Akola city. Good quality Curry leaves were first cleaned properly then fried and grinded in mixer grinder for preparation of powder. Powder was use for experiment purpose as per treatments. Good quality Cumin was roasted on low flame until gives specific aroma then grinded it in mixer and used powder for experiment purpose as per treatments. Paneer was prepared as per the procedure standardized by Aneja *et al.* (2002) [2] with slight modifications. Total 07 treatments were planned and conducted by addition of curry leaves and cumin powder and their combinations in buffalo milk as Control (T₁), 0.2% Curry leaves powder (T₂), 0.4% Curry leaves powder (T₃), 0.2% Cumin powder (T₄), 0.4% Cumin powder (T₅), 0.2% Curry leaves powder + 0.2% Cumin powder (T₆) and 0.4% Curry leaves powder + 0.4% Cumin powder (T₇) with 04 replications.

Determination of chemical composition of paneer

The total solids content was determined by gravimetric method as per IS: 1479 (part- II), 1961. The fat content was determined by using standard Gerber method as described in IS:1224 (Part

I), 1977. The protein content was determined by estimating the per cent nitrogen by microkjeldhal method as recommended in IS:1479 (Part II), 1961. Ash content of paneer was determined as per the method described in A.O.A.C.(1975).The acidity of paneer expressed as per cent lactic acid was determined by the method described in IS:1479 (Part II),1960.

Statistical analysis: The data was tabulated and analyzed by employing Completely Randomized Design (CRD) using

seven treatments with four replications as prescribed by Sheoran *et al.* (1998) [13].

Results and Discussion

Physico- chemical quality of spicy paneer

Curry leaves and cumin powder blended spicy paneer was subjected to chemical analysis for fat, protein, ash, titratable acidity and total solids. The results obtained were furnished under the Table 1.

Table 1: Overall chemical composition of paneer prepared with different levels of curry leaves powder, cumin powder and their combinations

Treatments	Parameters				
	Fat	Protein	Ash	Titratable acidity	Total solids
T ₁	26.000	16.750	1.810	0.520	45.500
T ₂	25.950	16.728	1.815	0.521	45.415
T ₃	25.900	16.707	1.820	0.523	45.325
T ₄	25.992	16.753	1.822	0.520	45.595
T ₅	25.984	16.755	1.835	0.520	45.692
T ₆	25.942	16.730	1.825	0.520	45.510
T ₇	25.884	16.712	1.845	0.525	45.518
S.E.(m)±	0.016	0.008	0.003	0.004	0.003
C.D. at 5%	0.049	0.025	0.009	-	0.010

Fat content of paneer

It was observed that addition of spices and their combinations decreased the fat content of paneer. The result indicated that fat content was highest in paneer prepared without addition of spices (T₁). The decreasing trend of fat content in paneer might be due to the fact that the fat content of cumin (22.00%) is higher than curry leaves (1.00%); both values are much lower than plain paneer (26.00%). The present findings are in agreement with the result reported by Gole (2019) [3] that addition of different spices and their combinations had significantly affected the fat content of paneer. There was decrease in the fat content of paneer can be attributed to the fact that the fat content of cumin and black pepper is low. Mrunali Mhatre (2018) discussed that the fat content of paneer decreased with the addition of increasing level of ginger juice. Priya Mishra (2013) there was proportionately decreased in the fat content of paneer due to addition of different spices.

Protein content of paneer

It is indicated that, the protein content of control paneer was 16.750 (T₁) as the proportion of curry leaves powder blended with buffalo milk increased the protein content of paneer decreased 16.728 (T₂) and 16.707 (T₃). Whereas incorporation of cumin powder increases the protein content 16.753 (T₄) and 16.755 (T₅) of paneer as cumin contains 18.00 per cent of protein. These results are in close agreement with Omer (2014) [9] reported that increase in addition of cumin oil increased the protein content of soft white cheese. Similarly, the findings noted by Gole (2019) [3] reported that, as proportion of cumin spice with buffalo milk increased the protein content of paneer also increased as cumin contain 18.00 per cent protein while black pepper spice addition declines the protein content as it contain 10.00% protein. Richa Badola *et al.* (2018) observed that the protein content of paneer is slightly decreased with the addition of black pepper and cardamom. These findings are agreeable with the findings of present study.

Ash content of paneer

These results indicate that, as the proportion of curry powder and cumin powder increased; the ash per cent shows gradual increase in paneer. The increasing trend of ash per cent in paneer was more in cumin (8.0%) than the curry leaves (4.2%), while the ash content in paneer is (1.81%). The results of present study are in agreement with Mrunali Mhatre (2018) concluded that ash content of paneer increased gradually with addition of ginger juice. Monika Rani *et.al* (2014) [7] stated that ash content of paneer increased with addition of different spices. Similarly, Gole (2019) [3] stated that ash content of paneer increased with increase in addition of cumin and black pepper and their combinations.

Titratable acidity of paneer

It was observed from the table 1 that, average acidity was 0.520 percent in buffalo milk paneer (T₁) while acidity content of paneer blended with curry leaves, cumin powder and their combinations were 0.521, 0.523, 0.520, 0.520, 0.520 and 0.525 per cent in treatments (T₂), (T₃), (T₄), (T₅), (T₆) and (T₇), respectively. Treatment T₇ (0.525%) showed highest acidity. The treatment (T₁) was at par with (T₄), (T₅) and (T₆). The results obtained in present investigation were more or less in agreement with Priyanka Shirsat (2016) stated that there is slight increased in titratable acidity due to addition of peanut milk in paneer.

Total solids content of paneer

It was clearly indicated that as the addition of curry leaves powder increased total solids content of the blended paneer decreased in treatments T₂ (45.415%) and T₃ (45.325%). Whereas addition of cumin powder to paneer increased the total solids content of paneer also increased. The treatment (T₅) 0.4% cumin powder paneer showed highest (45.692%) total solids content. These results obtained were in agreement with Omer (2014) [9] that as addition of cumin oil in white cheese increased the total solids content of cheese was enhanced. Monika Rani *et. al.* (2014) [7] showed that total solids content of paneer decreased with the addition of different spices.

Conclusion

1. Chemical analysis of paneer showed that, fat and protein content in paneer decreased whereas ash and total solids content was increased and titratable acidity was minutely influenced with increase in level of curry leaves powder, cumin powder and their combinations.

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