

UF "Tallaga" CHEESE QUALITY MADE BY INCORPORATING BIFIDOBACTERIA AND DIFFERENT SALTING RATES

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ABSTRACT:

: Nine UF "Tallaga" cheese treatments were made, to three of them salt was added at the rate of 3%, one of them was served as control and to the other two Bif. bifidum ATCC 29521 and Bif. longum BL-04 were added individually. Another three treatments were made as described above except salt was added at the rate of 4%. The other 3 cheese treatments were made as above except salt was added at the rate of 5.0%. Obtained results showed that, increasing salting rate from 3 to 5 caused a significant decrease in ripening indices [water soluble nitrogen (WSN), Shilovich number and total volatile fatty acids (TVFA)], also total scores of sensory evaluation, bifidobacterial counts while increased the salt, ash content and pH value. Moreover, cheese treatments made by adding 3% salt were not significantly different from corresponding cheese treatments made by adding 4% salt. Incorporation of bifidobacteria increased the ripening indices, total score of organoleptic evaluation, acidity, but did not affect significantly fat, total protein, ash and salt contents of cheese. Cheese treatments made by incorporating Bif. longum were not significantly different from corresponding cheese treatments made by incorporating Bif. bifidum. Total counts of bifidobacteria increased up to the 1st week then decreased till to the end of storage period. Cheese treatments those made by adding 4% salt and incorporating bifidobacteria were the most acceptable cheese and even after storage for 4 weeks contained bifidobacterial counts higher than that should be present to achieve their health benefits.

Key words: UF "Tallaga" cheese, bifidobacteria, probiotic bacteria, salting rate.

MANUFACTURE OF YOGHURT FROM COW'S MILK FORTIFIED WITH TRYPSIN MODIFIED WHEY PROTEINS

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ABSTRACT:

Two types of whey protein concentrates (WPC) heat precipitated salted sweet whey (SWPC) ultra filtrated acid whey (FWPC) were hydrolyzed with trypsin at the rate of 0.4 gm / 100 gm protein. Nine treatments of yoghurt were made to study the effect of replacing non-fat dry milk with trypsinized WPC on the quality of yoghurt. Replacement of non-fat dry milk with hydrolyzed WPC caused significant ($p < 0.05$) increase total protein, ash, non-protein nitrogen and diacetyl (DA) and acetyl methyl carbinol (AMC) contents, curd tension and scores of organoleptic properties, while syneresis decreased. On the other hand, fortification of cow's milk with trypsinized whey protein concentrates (mFWPC and mSWPC) did not affect significantly the total solids content, acidity and pH values of the resultant yoghurt treatments. The type of WPC did not have significant effect on total solids, total protein, ash and non-protein nitrogen contents, while mFWPC was effectively increased the DA + AMC, scores of organoleptic properties and decrease the syneresis of whey as compared to yoghurt treated with mSWPC. Total solids, total protein, non-protein nitrogen and ash content did not change significantly during the storage period; however, the acidity increased and pH value decreased as the storage period proceeded. DA and AMC increased, while whey syneresis decreased up to the 6th day of storage, thereafter DA + AMC decreased, whilst whey syneresis increased up to the end of storage period. It could be replace non-fat dry milk with mFWPC up to 75% and mSWPC up to 50% without detrimental effects on yoghurt quality made from cow's milk.

Key words: : Cow's milk, yoghurt fortification, modified whey protein concentrate, non-fat dry milk.

MANUFACTURE OF LOW FAT DOMIATI CHEESE USING FAT MIMETICS

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ABSTRACT:

Seven Domiati cheese treatments were made to study the effect of fat replacers on cheese quality. Control cheese was made from buffaloe's milk standardized to 5.0% fat. Another six cheese treatments were made by replacing 20, 40 and 60% of milk fat by either Dairy-Lo (a protein based fat replacer) or Litesse (a carbohydrate based fat replacer) individually. Replacement of milk fat with fat replacers caused a pronounced increase in moisture content and decrease in total calorific values of cheese treatments. Using Dairy-Lo increased the protein content, while using Litesse increased the total carbohydrate content of cheese treatments. Cheese treatments those made by replacing milk fat with Dairy-Lo contained higher total volatile fatty acids (TVFA), water soluble nitrogen (WSN) and were more acceptable than corresponding cheese treatments those made by adding Litesse. Cheese treatment that made by replacing 40% milk fat with Dairy Lo contained the highest TVFA, WSN and was the most acceptable cheese. Moisture and total nitrogen contents decreased during pickling period, while fat, ash, TVFA, WSN, calorific value, titratable acidity and scores of organoleptic properties increased of all cheese treatments.

Key words: Low fat, Domiati cheese, fat replacers, Dairy-Lo, Litesse.

MANUFACTURE OF YOGHURT FROM COW'S MILK FORTIFIED WITH BUTTER MILK

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ABSTRACT:

The effect of replacing skim milk powder that used to fortify cow's milk with spray dried butter milk on the quality of yoghurt was studied. Control yoghurt was made from 3.0% fat cow's milk fortified with 3% skim milk powder. Four treatments were made from that milk, but skim milk powder was replaced by butter milk at the rate of 25, 50, 75 and 100%. Replacement of skim milk powder with butter milk did not affect significantly total solids, total protein, ash contents, titratable acidity, viscosity and curd tension of the resultant yoghurt treatments. Whey syneresis decreased, while diacetyl and acetyl methyl carbinol (DA + AMC) increased by replacing skim milk powder with butter milk and this increase or decrease was proportional to the rate of replacement. Replacement of skim milk powder with butter milk up to 50% did not affect the scores of organoleptic properties, while increasing the replacement rate above that decreased those scores. Scores of organoleptic properties did not change significantly during the first 6 days of storage, then decreased slightly up to the end of storage period. Total solids, total protein, fat, ash contents did not change significantly during storage, while titratable acidity increased. Diacetyl and acetyl methyl carbinol increased as storage period proceeded and reach their maximum values at the sixth day then decreased up to the end of storage period. Whey syneresis decreased during the first 6 days of storage period, then increased up to the end of storage period. Total bacterial, lactobacilli and streptococci counts increased during the first 3 days of storage period, then decreased up to the end of storage period.

Key words: Yoghurt, cow's milk, skim milk powder, butter milk.

MANUFACTURE OF LOW FAT PREBIOTIC YOGHURT

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ABSTRACT:

Effect of replacing milk fat with inulin on the chemical, rheological, microbiological and sensory properties of probiotic yoghurt was studied. Control yoghurt was made from buffalo's milk that standardized to 4.0% fat. Two treatments were made from buffalo's milk standardized to 3.0% fat and inulin was added to them at the rate of 1.0 and 0.5%, respectively. Another two treatments were made from buffalo's milk standardized to 2.0% fat and inulin was added to them at the rate of 2.0 and 1.0% in the same order. The other two treatments were made from buffalo's milk standardized to 1.0% fat and inulin was added to them at the rate of 3.0 and 1.5% successively. Replacement of milk fat with the same amount of inulin did not affect significantly ($p > 0.05$) the total solids, total protein and ash content of low fat prebiotic yoghurt, while total solids content decreased when the amount of inulin was decreased. Replacement of milk fat with inulin caused a significant ($p < 0.05$) increase in total carbohydrate content, diacetyl, acetyl methyl carbinol, curd tension and acidity, while total energy and whey syneresis decreased of the resultant yoghurt treatments. Those yoghurt treatments made from 3.0 and 2.0% fat milk with adding 1.0% inulin were the most acceptable samples. Also, adding inulin stimulate the growth of total bacterial lactobacilli and streptococci. On the other hand, total solids, total protein, fat, ash and carbohydrate contents and calorific values did not change in yoghurt samples during storage, at $6 \pm 1^\circ\text{C}$ for 12 days, while titratable acidity and total volatile fatty acids increased at the same conditions. Whey syneresis of all yoghurt treatments decreased until the 6th day of storage then increased later on. Diacetyl and acetyl methyl carbinol increased up to the 6th day of storage then decreased as storage period progressed. Scores of sensory evaluation were almost stable during the first 6 days of storage period then decreased slightly until the end of storage period. Total bacterial, lactobacilli and streptococci counts of all yoghurt treatments increased up to the 3rd day of storage period then decreased until the end of storage period.

Key words: Low fat, yoghurt, prebiotic, inulin, fat replacers.

IMPROVING QUALITY OF KAREISH CHEESE BY GAMMA IRRADIATION

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ABSTRACT:

This investigation aims to study the possibility to utilize gamma irradiation to prolong the shelf-life of Kareish cheese. Kareish cheese was made from fresh buffalo's skim milk, and subjected to γ -irradiation with 0.0, 1.5 , 2.5 and 3.5 kGy, and stored in refrigerator. The sensory, microbial and chemical properties of Kareish cheese were evaluated during cold storage. The obtained results indicated that, the counts of total viable bacteria, molds and yeasts were decreased by applying gamma irradiation. Irradiation treatment caused a significant decrease in water soluble nitrogen, acidity ,counts of total viable bacterial , mould and yeast. The overall acceptability scores, moisture content and pH value of all treatments were gradually decreased as storage period proceeded, while acidity, total nitrogen and water soluble nitrogen of all treatments were gradually increased. In addition treatments of cheese with 1.5, 2.5 and 3.5 kGy respectively prolonged the shelf-life of Kareish cheese to 42, 48 and 54 days compared to 12 days for control treatment.

Key words: Kareish cheese , gamma rays .

EFFECT OF IRRADIATION TIME AND DOSE ON RIPENING OF RAS CHEESE WITH SPECIAL REFERENCE TO CONTROL SURFACE MOULD GROWTH

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ABSTRACT:

: Effects of irradiation dose and time during ripening period of Ras cheese on its quality were studied. Ras cheese was divided into 7 groups each group contains 4 wheels. Cheese groups 2, 3, 4, 5, 6 and 7 were irradiated immediately after manufacture and after 30, 60, 90, 120, 150 days respectively, while the first group was served as control. Ras cheese wheels of each group was irradiated at 2, 3, 4 and 5 kGy. Irradiation caused significant ($P < 0.05$) increase, after irradiation immediately (fresh samples), in water soluble nitrogen, Shilovich ripening index, formol ripening index, soluble tyrosine and tryptophan. Irradiation treatment caused significant ($P < 0.05$) decrease in water soluble nitrogen, Shilovich ripening index, formol index, soluble tyrosine and tryptophan, total volatile fatty acids, scores of organoleptic properties, total bacterial, lipolytic and proteolytic bacterial counts during ripening period of Ras cheese as compared with control cheese, while did not affect significantly ($P > 0.05$) the fat and total nitrogen contents. These decreases in ripening indices were proportional to the irradiation dose. Ras cheese treated with 4 and 5 kGy exhibited the lowest counts of proteolytic and lipolytic bacteria and subsequently the lowest ripening indices values and the lowest score of sensory evaluation. Irradiation cheese with 4 and 5 kGy were sufficient to inhibit the growth of mould and yeast on cheese especially when were applied after making cheese (second group) and after 30 days from making cheese (third group). All ripening indices and scores of organoleptic properties of all cheese treatments increased during ripening period, while fat and total nitrogen on dry basis did not changed significantly.

Key words: Ras cheese, ripening period, Gamma irradiation, ripening indices.

***EFFECT OF FORTIFICATION INGREDIENTS ON THE QUALITY OF
YOGHURT MADE FROM COW'S MILK***

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ABSTRACT:

Effect of replacing non-fat dry milk that used to fortify cow's milk in making yoghurt with either milk protein concentrate or whey protein concentrate or inulin were studied. Control yoghurt treatment was made from 3.0% fat cow's milk that was fortified with 3.0% non-fat dry milk. Another 12 yoghurt treatments were made by replacing 25, 50, 75 and 100% of non-fat dry with either milk protein concentrate or whey protein concentrate or inulin respectively. Replacement of non-fat dry milk with other ingredients did not affect significantly (0.05) the total solids and fat contents of yoghurt treatments. Protein and ash content increased by replacing non-fat dry milk with milk protein concentrates, while using inulin to replace non-fat dry milk caused a significant decrease in total protein and this increase or decrease was proportional to the rate of replacement. Replacing of non-fat dry milk with milk protein concentrate caused a significant increase in titratable acidity of yoghurt treatments, while replacing of non-fat dry milk with inulin up to 50% increased yoghurt acidity. Increasing the rate of replacing non-fat dry milk with inulin up to 50% increased total volatile fatty acids, while treatments those made using milk protein concentrate and whey protein concentrate were not significantly different from control yoghurt treatments. Replacement of non-fat dry milk with either inulin or whey protein concentrate caused a significant reduction in whey syneresis. On the other hand, curd tension of yoghurt increased by replacing non-fat dry milk with either milk protein concentrate or inulin. Yoghurt treatment that made by replacing 50% of non-fat dry milk was the most acceptable yoghurt treatments and were not significantly different from yoghurt treatments those made by replacing 25 and 50% of non-fat dry milk with milk protein concentrate.

Key words: Inulin, non-fat dry milk, milk protein concentrate, whey syneresis, prebiotic