Physicochemical Characteristics and Sensory Properties of Coconut Milk Based Yoghurt

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Abstract

Yoghurt is a popular fermented milk product, and milk, like other animal protein sources, is scarce and expensive. In the light of the above, this research was taken to promote the use of coconut in the production of yoghurt. This is done by producing yoghurt from coconut milk extract and cow milk. Fat content of the coconut milk yoghurt (CCMY) was significantly (P<0.05) higher than the cow milk yoghurt (CWMY) and mixed milk yoghurt (MMY). Protein content of sample cow milk yoghurt (CWMY) and mixed coconut/cow milk yoghurt (MMY) were significantly (P<0.05) higher than that of the Coconut milk yoghurt (CCMY) The energy value of the coconut milk yoghurt (CCMY) was significantly (P<0.05) higher (175.498) followed by the mixed milk yoghurt (MMY) (126.999). Cow milk yoghurt gave the least energy value (96.275kcal). Coconut milk yoghurt received significantly (p<0.05) higher colour acceptability. Taste, texture and overall acceptability of cow milk and mixed milk yoghurt were significantly (P<0.05) higher than the coconut milk yoghurt.

***Key Words**: Coconut milk, Cow milk, Extraction, Physicochemical, Sensory*

1. Introduction

Coconut milk is obtained from the white firm part of coconut meat. It is an oil-water emulsion obtained from the aqueous extract of coconut meat. Coconut milk is nutritionally rich in dietary protein, energy, calcium, and fat such as myristic acid, oleic acid, lauric acid, linoleic acid, palmitic acid, and capric acid (Belewu and Belewu, 2007). It is also a rich source of vitamins and minerals (Nieuwentus and Nieuwelink, 2002). The use of coconut milk in various food industries, such as confectionaries, bakeries, biscuits and ice cream, to enhance flavour and taste of food products is being practiced worldwide (Persley, 1992). According to the latest research and development carried out, it is found that coconut-based ingredient could be used to substitute dairy ingredients relatively at low cost. Such as in coconut yogurt, coconut cheese and coconut whip cream.

Yogurt is traditionally made from animal milk, especially cow milk. It is a fermented product obtained by the fermentation of cow milk using lactic acid bacterial such as Streptococcus thermophiles and Lactobacillus delbrueckii spp.Bulgaricus. However, over the years milk from

plant sources is being explored as the animal milk substitute in the production of dairy products including yogurt. This development was due to a wide range of reasons which include allergies and affordability by the consumers (Masmba and Ali, 2013). The conversion of lactose in milk precursor to lactic acid by the bacterial culture during fermentation makes yogurt suitable for people who are moderately lactose intolerant (Heyman, 2000). Important accept of yoghurt from coconut milk is that it can be consumed by lactose intolerant. Addition to the nutritional benefits yogurts offer numerous benefits such as helping with a variety of gastro-intestinal conditions. (Mazahreh and Ershidat, 2009).
According to study carried out in Brazil, the intestinal disturbances of infants were successfully treated by feeding coconut milk, which shows that coconut skim milk has the same protein level (1.6 per cent) as that of mother's milk, which can be well utilised by infants. Both produce a soft curd when acted by the gastric juice (Grimwood, 1975). Davida *et al*. (1993) remarked that Coconut yoghurt is consumed as a snack or as a daily food for therapeutic purposes helps in digestion for older people. Yoghurt also has medical uses because of the probiotic characteristics, in helping out on a variety of gastro intestinal conditions and in preventing antibiotic associated diarrhea (Lourens-Hattingh and Viljoen, 2001).
Coconut is indigenous to us, but the awareness to the people about its usefulness in terms of nutrition, health and economical value is low. Coconut fruit is locally available and cheap but it's numerous by products and usefulness has so far not been taken advantage of. According to the latest research and development carried out, it is found that coconut -based ingredient could be used to substitute dairy ingredients relatively at low cost. Such as in coconut yoghurt, coconut cake and coconut cookies
Yoghurt is traditionally made from animal milk, especially cow milk. Moreover, over the years, milk from plant sources is being explored as animal milk substitute in the making of dairy products including yoghurt. The exploration was due to wide range of reasons which include affordability and allergies by the consumers (Masamba and Ali, 2013). A preliminary work has reported the production of nutritious and delicious yoghurt made with coconut milk and cow milk (Imele and Atemenkeng, 2001). There are also studies reported on the combination of soymilk and coconut milk in preparation of soy-coconut milk yoghurts (Belewu *et al*. 2005, Kolapo and Olubamiwa 2012). Also, yoghurt produce from 50% tigenrut and 50% and coconut milk have been shown to be acceptable based on the evaluated sensory parameter reported by Belewu *et al.* (2010). An acceptable symbiotic functional yoghurt with both probiotic and prebiotic properties has been produced from powdered full cream milk and coconut milk (Ndife *et al.,* 2014). Sanful (2009) has also shown that an acceptable yoghurt based on sensory attributes could be produced from skimmed cow-coconut milk. Yoghurt, apart from being a probiotic carrier, is a rich and known source of quality protein, calcium, milk fat, potassium, magnesium, and vitamins B2, B6, and B12 (Staffolo *et al*., 2004). The fact that most of the lactose in milk precursor is being converted to lactic acid by the bacterial culture during fermentation makes yoghurt suitable for people who are moderately lactose intolerant (Heyman, 2000). Apart from being nutritionally rich in protein, vitamins, and minerals, yoghurts offer several health benefits, some of which include the prevention of antibiotic associated diarrhoea and helping with a variety of gastro-intestinal conditions (Mazahreh and Ershidat, 2009).

According to Ajogun *et al* (2020) about 60 per cent of the coconut produce in Nigeria is consumed in the raw form, leaving the remaining for copra production and oil milling. There is great need to develop and standardize the coconut products for commercial exploitation, since it can be cultivated appreciable in our region Nigeria. The utilization of coconut milk as a functional food will help in solving the problem of chronic diseases and obesity prevailing in our country especially among the children. This shows that the production of coconut yoghurt is a necessity.

Hence, the study intends to solve the problems of achieving an enrich tests of these products. It seeks to solve the problems of; acceptability, nutritional value and knowledge of coconut yoghurt

It is also estimated that the use of these by products from coconut fruit will result in the production of less expensive and highly nutritive products than those produced before. The products will be beneficial to lactose tolerant patient. Thus, the objective of this work is to produce coconut yoghurt, determine the chemical composition and carryout sensory evaluation on the coconut yoghurt

2.0 MATERIALS AND METHODS

2.1 Preparation of Coconut Yoghurt

2.2 Raw Materials

Coconut milk, peak milk powder and freeze-dried starter culture purchased from super store in Port Harcourt in Nigeria. Distilled water used in blending the coconut fruit and reconstituting the peak milk powder.

2.3 Extraction and preparation of coconut milk

The coconut milk was prepared according to Kolapo and Olubamiwa (2012) method. The coconut fruit was cracked manually and the meat removed with knife. The brown part of the meat was scraped off. It was washed and grated for blending. 2kg of grated coconut meat were blended with 1.5ml of distilled water. It was then sieved with cheese cloth. The slurry obtained (the coconut milk) was stored in a bottle in a refrigerator.

2.4 Preparation of Cow Milk

600g of peak powder was weighed into a measuring cylinder. 1.5 ml of distilled water was added to the peak milk and thoroughly stirred to give a homogenous mixture. The mixture was stored in a bottle in a refrigerator

2.5 Preparation of Cow Milk-Coconut Milk Blends

The yoghurt was produced by mixing cow milk and coconut milk at ratio of 50:50 and coconut milk alone and cow milk alone at ratio of 100% respectively. This were labelled as samples A, B and C (control) respectively (Table 3.1). The three sample were heated separately to a temperature of 80^0C for 15 minutes. It was subsequently cool to 43^0C in a water bath. The mixtures were incubated with a starter culture, stirred properly and kept at a temperature of 43°C for 12 h. The yoghurts were placed in a refrigerator at 4 °C and subjected to analyses within 12 hours after production

Table 1 Formulation Of Enriched Coconut Yoghurts

	Yoghurt samples		
Ingredients	**A**	**B**	**C**
Coconut milk (ml)	50	100	0
Milk powder (ml)	50	0	100
Starter culture (g)	0.5	0.5	0.5

2.6 Proximate Composition of coconut yoghurt

2.6.1 Moisture Content

The moisture content of the samples was determined using AOAC (1990) procedure 14.006. Aluminium moisture cans were weighed and dried in an air oven (DHG-9140A, China), transferred to a desiccator, cooled for 20 minutes and weighed. Five grams of each test sample was weighed into the cans and the weight noted, the can and its content were heated at 105^{0}C for 4 hours. The cans at the end of heating was cooled in the dessicator and weighed. The moisture content was calculated using the formula.

$$\text{Moisture (\%)} = \frac{\text{Weight loss}}{\text{Weight of sample}} \times \frac{100}{1}$$

2.6.2 Ash Content

The Ash content was determined using the method of AOAC (1990) procedure (77.062). 2g sample was weighed into previously ignited and cooled porcelain crucible. The crucible and samples were heated on a heating mantle (Gehardt, Germany) until smoking ceases. The crucible and content were transferred into a muffle furnace. (SXL, China) and was ashed for 3 hours at 550^{0}C. The crucible and ash will be removed from the furnace and cooled in a desiccators and weighed again. The ash content was calculated as follows:

$$\text{Ash (\%)} = \frac{\text{Weight of ash}}{\text{Weight of Sample}} \times \frac{100}{1}$$

2.6.3 Crude Fat

The crude fat was determined using a micro-extraction fat unit. 0.5g of the sample was weighed, wrapped in a whatman number 1 filter paper and placed in a thimble, the thimble was placed inside the extraction flask and 40ml of hexane poured into the 50ml extraction flask. The flask and its content were placed on a multifunction shaker and oscillated for 3 hours. At the end of the extraction process, the thimble was removed and solvent evaporated, and the flask was dried in an air oven (DHG- 9140A, China) for 30 minutes at 105^0 C, cooled and weighed. The difference in weight in the extraction flask before and after extraction were recorded as the amount of fat or ether extract and was calculated as follows:

$$\text{Crude Fat (\%)} = \frac{weight\ of\ fat}{weight\ of\ sample} \times \frac{100}{1}$$

2.6.4 Crude Protein

Determination of the crude protein content was the method of the AOAC (1990) procedure 2.057. Sample of 0.5g was weighed into a 250ml digestion flask. To this was added 2 tablets of Kjedahl catalyst and 12ml of concentrated Sulphuric acid. The content of the flask was

placed on a digest furnace (Tecator Digestor and china), set at 420^0C and digested for 1hour. The digest was allowed to cool and made upto 100ml using distilled water. 20ml of the digest was introduced into a 250ml kjedahl distillation flask and to which was added 20ml of 45% sodium hydroxide.
The flask was then placed on a kjedahl distillation unit (Foss 2100, China) and the ammonia liberated distilled into 10ml boric acid indicator. The distillate was back titrated against 0.1NHCl solution to a pink end point. A blank determination was also carried out and was subtracted from the sample reading and the %N and % crude protein was calculated as follows:

$$N (\%) = \frac{(\text{Titre} - \text{Blank}) \times \text{Normality of acid} \times 1.4}{\text{Weight of sample}}$$

$$\text{Crude protein} (\%) = \%N \times 6.25$$

2.6.5 Determination of Crude Fibre

0.5g of the sample was weighed and placed in a 100ml beaker, 25ml of 1.25% W/V sulphuric acid was added and covered with a watch glass. The content of the beaker was heated gently on a hot plate (Gehardt, Germany) 10 minutes (acid hydrolysis). The content of the beaker was then filtered through a buchner funnel filtered with filter paper (Whatman No. 1 and washed with boiling water until the washings is no longer acid to litmus. The residue was then washed back into the beaker with 25ml of 1.25% sodium hydroxide. This was then heated for 10 minutes covered with watch glass (alkaline hydrolysis). The resulting insoluble material was then transferred to a dried pre-weighed ashless filter paper (Whatman No 42) and washed thoroughly with hot water until the washings was no longer alkaline to litmus. The filter paper with insoluble material was dried at 105^0C to a constant weight for one hour. The dried filter paper and its content was incinerated to an ash at 500^0C for 1 hour cooled and weighed.
The fibre was calculated thus,

$$\text{Fibre} = \text{Weight of insoluble material} - \text{weight of ash}$$

$$\text{Cruide fibre} = \frac{\text{Weight of fibre}}{\text{Weight of sample}} x \frac{100}{1}$$

2.6.6 Carbohydrate (By Difference)

The carbohydrate content was determined by difference i.e. 100 – (% + % Ash + % Fat + % crude protein + % fibre)

2.7 Functional Properties of Coconut Yoghurt Produced

2.7.1 Determination of pH

The pH was determined using Hanna Instrument pH meter, standardized with buffer solution 4.0 and 7.0 according to AOAC (2012) method. The pH meter was calibrated and then dipped in each sample. Readings were recorded for all samples

2.7.2 Determination of viscosity

Viscosity of the samples were determined with the aid of a Rotary Digital Viscometer (NDJ - 8S). Using spindle number 2 at 6rpm, 300ml of the samples was transferred into a beaker. The content of the beaker was introduced onto the rotating spindle and values of the viscosity displayed on the LCD screen in pa.s was taken as the viscosity of the sample.

2.7.3 Determination of total solids

Total solids contents of the samples were determined as follows; a flat aluminium dish with cover was cleaned and dried at105^oC for 15 minutes and cooled in a desiccator for 10 minutes and weighed (W_1). Five grams of the sample was then weighed into the dish (W_2) and the dish and the content dried at 150^oC for 4hrs in an air oven until a constant weight was obtained. The dish and its content were then removed from the oven, cooled in a dessicator and weighed again (W_3). The weight of the solid was then calculated using the formula:

% Total Solid = 100- % Moisture content

$$\% \text{ Moisture content} = \frac{W3-W2}{W2-W1} \times \frac{100}{1}$$

2.8 Sensory Evaluation of Yoghurt

The sensory evaluation parameters, such as taste (sourness), appearance (colour and texture) and overall acceptability of the three (3) yoghurt samples were evaluated by 20 untrained member panelists comprising of both student and staff members of Food Science and Technology, Rivers State University. The panelists were presented with the coded yoghurt samples and drinkable water to rinse their mouth after tasting each sample. The panelists were instructed to score the coded samples base on taste (sour, blend, acid), colour (off-white, yellowish, white), texture (creamy, lumpy, smoothness) and flavour (flat, bland, present). On a 9-point hedonic scale with 1 as dislike extremely and 9 as like extremely.

2.9 Experimental Design and Statistical Analysis

The work was fully experimental, data were collected and analysed using complete Randomization Design (CRD). All experiments and analysis were carried out in replicates. The mean and standard deviation value were calculated. Data were subjected to Analysis of Variance (ANOVA). Means were separated using Tukey's multiple comparison test, and significance accepted at $P \leq 0.05$ level. The statistical package in Minitab 16 computer program was used.

3. Results and Discussion

3.1 Proximate Composition of Yoghurt Produced from Coconut Milk, Cow Milk and their Blends.

Result for the proximate composition of yoghurt produced from coconut and cow milk blend is shown in Table 2. There was no significant difference ($P>0.05$) in moisture content and ash content of the 3 yoghurt samples. Fat content of the coconut milk yoghurt was significantly ($P<0.05$) higher than the cow milk and mixed milk yoghurt. Protein content of sample CWMY (cow milk yoghurt) and MMY (mixed coconut/cow milk yoghurt) were significantly (P<0.05) higher than that of the coconut milk yoghurt. Carbohydrate content of the three yoghurt samples were significantly (P<0.05) different, with mixed milk yoghurt given significantly (P<0.05) high value of 34.077%.

Yoghurt, as a fermented diary product is regarded as a probiotic carrier, is nutritionally rich in available protein, calcium, milk fat, potassium, magnesium. It has nutritional benefits beyond those of milk, because people who are moderately lactose intolerant can enjoy yoghurt without ill effects, as most of the lactose in the milk precursor has been converted to lactic acid by the bacterial culture (Heyman, 2000). Yoghurt also has medical uses because of the probiotic characteristics, in helping out on a variety of gastro intestinal conditions and in preventing antibiotic associated diarrhea (Lourens-Hattingh and Viljoen, 2001). There was no significant difference (P>0.05) in moisture content and ash content of the 3 yoghurt samples. Moisture content ranged from 71.144 – 76.588%, This was slightly lower than the range of values (80.10-85.23%) reported by Ndife *et al*. (2014) for milk-based yoghurts enriched with coconut cake. The decrease in moisture contents of coconut milk substituted yoghurts agreed with the assertion of Sanful (2009) that skimmed cow milk contained more water than pure coconut milk yoghurt. Fat content of the coconut milk yoghurt was significantly (P<0.05) higher than the cow milk and mixed milk yoghurt. Protein content of sample CWMY (cow milk yoghurt) and MMY (mixed coconut/cow milk yoghurt) were significantly (P<0.05) higher than that of the coconut milk yoghurt. Carbohydrate content of the three yoghurt samples were significantly (P<0.05) different, with mixed milk yoghurt given significantly (P<0.05) high value of 34.077%.

Table 2 Proximate Composition of Yoghurt Produced from Coconut Milk, Cow Milk and their Blends

SAMPLES	MOISTURE (%)	ASH (%)	FAT (%)	PROTEIN (%)	CHO (%)
CCMY	71.144^{a}	0.538^{a}	12.445^{a}	3.470^{b}	6.892^{c}
	±1.469	0.114	2.711	0.580	0.002
CWMY	76.588^{a}	0.999^{a}	1.325^{b}	5.970^{a}	14.596^{b}
	±0.783	0.142	0.577	0.580	0.802
MMY	73.363^{a}	1.179^{a}	5.033^{b}	6.625^{a}	34.077^{a}
	±4.412	0.311	0.914	0.615	0.532

Values are means ± standard deviation of triplicate samples.
Mean values bearing different superscript in the same column differ significantly (P<0.05).

Key: CCMY = coconut milk yogurt (100%)
CWMY = cow milk yogurt (100%)
MMY = mixed milk yogurt (50% coconut milk + 50% cow milk)

3.2 Energy Value of Yoghurt Produced from Coconut Milk, Cow Milk and their Blends

As shown in figure 2., the Energy value of mixed milk yoghurt was significantly (P<0.05) higher (208.10kcal) followed by the coconut milk yoghurt (153.45 kcal), cow milk yoghurt gave the least energy value (94.19 kcal).
Energy value of mixed milk yoghurt was significantly (P<0.05) higher (208.10kcal) followed by the coconut milk yoghurt (153.45 kcal), cow milk yoghurt gave the least energy value (94.19 kcal). This result indicates that coconut milk yoghurt provides appreciable amount of energy, besides it probiotic and body building functions (Staffolo *et al*., 2004). According to Adelodun *et al*. (2018), the world in 2000 pledged through Millennium Development Goals (MDGs 1 and 2) to halve hunger and KEY A,B and C were yoghurt premixes containing 20% coconut milk. KEY D,E and F were yoghurt premixes containing 10% coconut milk and fermented with commercial yoghurt starter, KEY G was a yoghurt premix containing 20% coconut milk and fermented with commercial yoghurt starter with coconut milk added 3hrs after the commencement of fermentation.

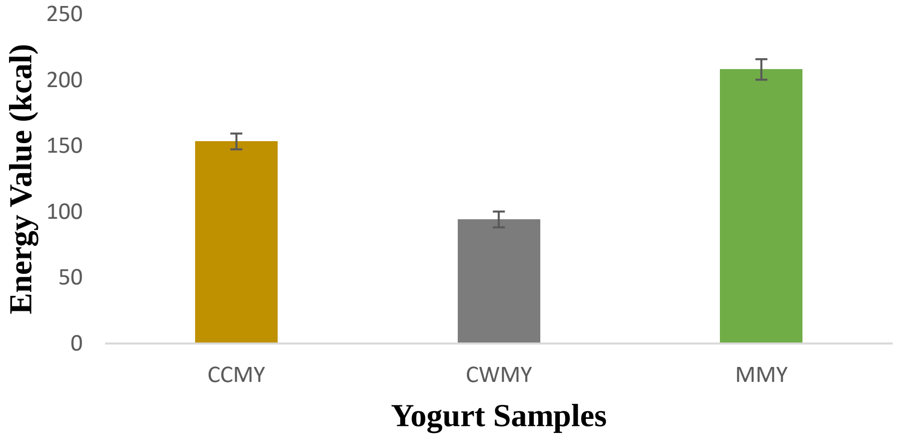

Figure 2. Energy Value of Yoghurt Produced from Coconut Milk, Cow Milk and their Blends

Key: CCMY = coconut milk yogurt (100%)
CWMY = cow milk yogurt (100%)
MMY = mixed milk yogurt (50% coconut milk + 50% cow milk)

3.3 Physicochemical Properties of Yoghurt Produced from Coconut Milk, Cow Milk and their Blends

From Table 3, pH value ranged from 4.05 – 4.45, differences observed were not statistically significant (P>0.05). the viscosity of sample CCMY (coconut milk yoghurt) was significantly. (P<0.05) lower than those of samples CWMY (cow milk yoghurt) and MMY (50:50 coconut/cow milk yoghurt). Total acidity ranged from 0.925% – 2.155%, with the cow milk yoghurt given significantly (P<0.05) lower value of 0.925%.
From the result, pH value ranged from 4.05 – 4.45, differences observed were not statistically significant (P>0.05). the viscosity of sample CCMY (coconut milk yoghurt) was significantly.

(P<0.05) lower than those of samples CWMY (cow milk yoghurt) and MMY (50:50 coconut/cow milk yoghurt). Total acidity ranged from 0.925% – 2.155%, with the cow milk yoghurt given significantly (P<0.05) lower value of 0.925%. The range of values obtained for the pH of the yoghurts was similar to 3.90 – 4.50 reported for coconut/cow milk yoghurt (Sarafa et al., 2018) and also similar to 3.90-4.30 reported for coconut-tigernut milk yoghurts and compared favourably to 4.20-4.40 reported for skimmed cow milk powder-coconut milk yoghurts by Akoma *et al.* (2000) and Sanful (2009), respectively. The pH values of the yoghurts in this study were within the acceptable limit (<4.50) recommended by the Food Standard Code for safe yoghurt (Donkor *et al*., 2006). Coconut milk substitution generally decreased the pH but increased the titratable acidity of the full-cream cow-coconut milk yoghurts significantly (p<0.05). This inverse relationship between pH and titratable acidity had been observed by earlier researchers (Kayode et al., 2017). The values obtained for pH and titratable acidity indicated that the yoghurts were acidic, and this could be beneficial in the inhibition of pathogenic and spoilage micro-organisms, as well as responsible for the sourness of the yoghurts. Akoma *et al.* (2000) attributed such acidity in 'kunun zaki' to the production of lactic acid by some species of lactic acid bacteria during the fermentation process.

Table 3. Physicochemical Properties of Yoghurt Produced from Coconut Milk, Cow Milk and their Blends

SAMPLES	pH	Viscosity (P.S)	Total Acid (%)	Total Solid
CCMY	$4.450^{a}\pm0.071$	$22.300^{b}\pm0.141$	$2.000^{a}\pm0.113$	$28.856^{a}\pm1.469$
CWMY	$4.100^{a}\pm0.000$	$22.830^{a}\pm0.042$	$0.925^{b}\pm0.035$	$23.412^{a}\pm0.783$
MMY	$4.050^{a}\pm0.071$	$22.700^{ab}\pm0.141$	$2.155^{a}\pm0.021$	$26.637^{a}\pm4.412$

Values are means ± standard deviation of triplicate samples.
Mean values bearing different superscript in the same column differ significantly (P<0.05).

Key: CCMY = coconut milk yogurt (100%)
CWMY = cow milk yogurt (100%)
MMY = mixed milk yogurt (50% coconut milk + 50% cow milk)

3.4 Sensory Properties of Yogurt Produced from Coconut Milk, Cow Milk and their Blends

The sensory properties of yoghurt produced from coconut and cow milk is shown in Table 4. mixed milk yoghurt received significantly (P<0.05) higher colour acceptability. The colour score for coconut milk and cow milk yoghurt were not significantly (p>0.05) different. Taste, flavour, texture and overall acceptability of cow milk and mixed milk yoghurt were significantly (P<0.05) higher than the coconut milk yoghurt.
The sensory properties of yoghurt produced from coconut and cow milk is shown in Table 4.30 mixed milk yoghurt received significantly (P<0.05) higher colour acceptability. The colour score for coconut milk and cow milk yoghurt were not significantly (p>0.05) different. Colour is an important quality parameter in food industries, owing to its direct relationship with the consumer's choice and preference (Sarafa *et al.,* 2018). Colour is the first contact perceived as a measure of quality and could greatly influence the consumer's acceptability of food products.

Colour of a food material is influenced by microbiological, biochemical, chemical, and physical changes that occur during physiological processes, postharvest handling, and processing (Pathare et al., 2013). The colour of food products could be indirectly used to measure other quality attributes such as flavour, sensory, nutritional, and pigments, due to its simplicity and good correlation with other physicochemical properties (Pathare et al., 2013). Taste, flavour, texture and overall acceptability of cow milk and mixed milk yoghurt were significantly ($P<0.05$) higher than the coconut milk yoghurt. This differed from the findings of Sanful (2009) who reported that yoghurt produced from skimmed cow milk did not differ from those produced from coconut and cow milk composites in all sensory quality attributes. Apart from being nutritionally rich in protein, vitamins, and minerals, yoghurts offer several health benefits, some of which include the prevention of antibiotic associated diarrhoea and helping with a variety of gastro-intestinal conditions (Mazahreh and Ershidat, 2009). Other notable roles attributable to probiotic bacteria in dairy fermentations include the production of flavour compounds such as acetaldehyde in yoghurt and cheese, and other metabolites such as extracellular polysaccharides that will provide a product with the organoleptic properties desired by the consumer

Table 4. Sensory Properties of Yogurt Produced from Coconut Milk, Cow Milk and their Blends

Samples	Colour	Taste	Flavour	Texture	Overall.Acceptability
CCMY	5.64^{b}	4.04^{b}	4.48^{b}	4.04^{b}	4.80^{b}
	±2.139	±2.091	±1.939	±2.051	±1.581
CWMY	7.32^{ba}	6.00^{a}	6.08^{a}	7.04^{a}	6.72^{a}
	±1.547	±2.102	±1.869	±1.172	±1.061
MMY	7.96^{a}	6.76^{a}	6.76^{a}	7.80^{a}	7.52^{a}
	±1.020	±2.107	±1.562	±0.957	±0.918

Values are means ± standard deviation of twenty-five responses.
Mean values bearing different superscript in the same column differ significantly ($P<0.05$).

Key: CCMY = coconut milk yogurt (100%)
CWMY = cow milk yogurt (100%)
MMY = mixed milk yogurt (50% coconut milk + 50% cow milk)

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Plate 1: Yoghurt Produced from Coconut Milk, Cow Milk and Their Blends

4 CONCLUSSION

Fat content of the coconut milk yoghurt was significantly (P<0.05) higher than the cow milk and mixed milk yoghurt, though, its protein content was lower. The energy value of the mixed milk yoghurt was significantly higher; thus, coconut milk provides appreciable amount of energy. The total acidity and thus storage potential of coconut milk yoghurt was significantly (P<0.05) higher than that of cow milk yoghurt. Taste, flavour, texture and overall acceptability of mixed (coconut/cow) milk yoghurt was significantly higher than the coconut milk yoghurt.

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