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EFFECT OF COCONUT (*Cocos nucifera*) FLAKES SUBSTITUTION ON SOME QUALITY PARAMETERS OF WHEAT BREAD

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ABSTRACT

Coconut has a unique taste and aroma and excellent dietary fibre which has potential application in baked products and human nutrition. Bread was baked using wheat flour and coconut flakes at different substitution levels 100% wheat flour (AWB), 80% wheat and 20% coconut flakes (CWB8), 85% wheat flour and 15% coconut flakes (CWB8.5) and 90% wheat flour and 10% coconut flakes (CWB9). Some quality parameters such as proximate, mineral, pasting, sensory and microbiological analyses were determined to find out the most appropriate substitution level that can give better acceptability. The results showed that proximate contents of samples increased with substitution level. Protein content ranged from 12.63% to 10.26%, fat from 2.23% to 6.13% and fibre from 0.23% to 0.29% respectively. There was a significant difference ($p< 0.05$) in the Calcium content of the flour blends with 20% coconut flakes (CWB8) having the highest value of 16.94m/kg while the control had the lowest value of 10.93mg/kg. Same trend was observed in the magnesium and potassium contents. The pasting properties revealed that 20% blends (CWB8) had the highest peak viscosity, through breakdown and final viscosity. The peak viscosity ranged from 1681 RVU to 2580 RVU and final viscosity from 1689 RVU to 2645 RVU when compared with the control which has 1814 RVU. Sensory evaluation results showed that CWB8 is the most preferred for all attributes determined when compared with other samples. Microbiological study showed that microbial counts of CWB8 had the highest value of 2.66×10^5 cfu/g at ambient temperature which was higher than the permissible limit within one week while samples stored in the fridge and freezer had low microbial counts. From this study, enrichment with coconut flakes increased the nutritional benefits of the bread because of the increased protein and dietary fibre contents which acts as a prebiotic that helps probiotic bacteria thrive and encourages optimal digestion helping to prevent constipation.

Key words: Coconut flakes, substitution, quality parameters, Wheat bread, Acceptability

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INTRODUCTION

Bread can be described as a fermented confectionery product produced mainly from wheat flour, water, yeast and salt by a series of processes involving mixing, kneading, proofing, shaping and baking [1]. Bread is an important staple food in both developing and developed countries and constitutes one of the most important sources of nutrients such as carbohydrate, protein, fibre, vitamins and minerals in the diets of many people worldwide [2].

Bread is universally accepted as a very convenient form of food that is important to all segments of the population. Its origin dates back to the Neolithic era and is still one of the most consumed and acceptable staple food products in all parts of the world. It is a good source of nutrients, such as macronutrients (carbohydrates, protein, and fat) and micronutrients (minerals and vitamins) that are essential for human health [3]. The coconut (*Cocos nucifera.*) is an important fruit tree in the world, providing food for millions of people, especially in the tropical and subtropical regions and with its many uses it is often called the "tree of life" [4]. *C. nucifera* is one of the most economically important crops in the tropics, serving as a source of food, drink, fuel, medicine, and construction material [5]. Coconut is rich in fiber, vitamins and minerals. It is an important multipurpose crop providing essential amenities for human life. The coconut (*Cocos nucifera*) is the most extensively grown and used nut in the world. Coconut is a good source of energy, because it contains approximately 37.29% fat, 11.29% carbohydrate and 4.08% protein [6]. The color is pure white and the fragrance is sweet. It provides a nutritious juice, milk and oil that has fed and nourished populations around the globe for years. It is a staple ingredient in the diet of most communities. It is estimated that nearly one third of the world's population depend on coconut to an appreciable degree for their food and their economy. However, with the advent of modern technology and for faster development of coconut sector in the country, product diversification, value addition and by product utilization have gained importance, to create demand for new products and by products in domestic market, and to ensure their supply throughout the year.

The use of coconut flour for baked foods, tasty snacks or healthy main dishes cannot be underrated, this is because of its distinctive nutrient and fiber composition that distinguish it from the more commonly used soy, nut, rice, corn and potato based flours.

Reduction of dependence on wheat importation may lead to savings in foreign currency. Therefore, it is necessary to create an environment that is friendly for research that will lead to the conversion of industrial by-products into functional ingredients. This research was therefore aimed at producing bread enriched with Coconut flakes and to determine some quality parameters and its acceptability after storing at different temperatures.

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MATERIALS AND METHODS

Material

Coconut, wheat flour, sugar, salt, fat, yeast, improver, and eggs were purchased from Ota market in Ogun State, Nigeria.

Reagents and Equipment

Some of the reagents and equipment used were made available by the Food Processing and Analytical Laboratories of the Chemical and Food Sciences Department of Bells University of Technology and the Central Research Laboratory of Bells University of Technology, Ota, Ogun State, Nigeria.

METHODS

Preparation of Coconut Flakes

The coconut fruit was washed in potable water, dehusked and deshelled. The coconut fruit was blanched for 15 minutes in hot water then cooled by exposing them to air and grating with a peeler then osmotic dehydration at 50 ^{0} brix for 1 hour and drying them in a cabinet dryer afterwards at 70-80^{0} C for 4-5 hours.

Coconut
↓
Dehusking
↓
Deshelling
↓
Blanching (for 15 minutes)
↓
Grating
↓
Osmotic Dehydration (for 1 hour at 50 ^{0} brix)
↓
Drying (at 70 ^{0} – 80 ^{0} C for 4-5 hours)
↓
Cooling
↓
Coconut flakes

Figure1: Flow chart for production of Coconut Flakes
Source: Coconut Development Board [7]

Flour blend formulation

The composite flour blends were formulated from wheat flour and coconut flakes. The blends were prepared by mixing wheat flour and coconut flakes in the percentage proportion of 80:20, 85:15, and 90:10 respectively using a food processor (Kenwwod M907 D England). 100% Wheat flour was used as control.

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Production of bread

All the ingredients were weighed and poured into a mixing bowl of the mixing machine. The ingredients were mixed with the aid of a mixer using slow speed for 3 minutes. Little water was added as the mixing continued, using high speed for 12 minutes. The dough was then put on a moulding table and moulded into desired shape (by hand). After cutting and weighing, the moulded dough was placed inside a lubricated baking pan and covered with a lubricated lid. It was transferred into a proofing chamber for 1hour 30 minutes in order to enhance fermentation and dough development, it was then transferred into the oven at temperature $200-210^{0}C$ for 30 minutes. The bread was removed from the oven and cooled.

Sieving of wheat flour

↓

Weighing of the ingredient

↓

Mixing of the ingredient

↓

Kneading

↓

Cutting into desired shape

↓

Fermentation (1hour 30 min.)

↓

Baking ($200^{0} – 210^{0}C$ for 30 mins.)

↓

Cooling

↓

Bread

Fig. 2: Flow chart for production of bread

Source: Food Processing Manual [8]

Proximate Analyses

Moisture, protein, ash, crude fat, crude fibre were determined using the standard procedures as described by AOAC [9]. Total carbohydrate was calculated by difference.

Pasting Properties

Pasting properties of the flour blends were characterized using the Rapid Visco Analyzer (RVA Model 3c, Newport Scientific PTY Ltd, Sydney) as described by Sanni *et al.*, [10].

Mineral Content Determination

The dry ashing procedure was used for mineral content as described by AOAC [11].

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Microbiological Analyses
The total plate count was carried out on the samples using the method of Fawole and Oso [12].

Storage Stability
Microbial analysis and sensory evaluation of the bread samples were determined immediately after processing and during storage at one week intervals for four weeks under ambient temperature, refrigerating temperature and freezing temperature.

Sensory evaluation
The sensory evaluation was carried out using a preference test as described by Hashim *et al*. [13]. A 9-point hedonic scale where 1 represents "extremely dislike" and 9 represents "extremely like" was used for this study. The organoleptic evaluation of the bread samples was carried out for consumer acceptance and preference using 15 semi-trained panelists. The properties evaluated were color, texture, aroma, taste, mouth feel, crispiness and overall acceptability bacteria and fungi growth were carried out once in a week for a period of four weeks of storage.

Statistical Analysis
The data were statistically analysed using Analysis of Variance (ANOVA) and means were compared using Duncan multiple range test; in the Statistical Package for the Social Sciences (SPSS) version 23, 2018. (IBM SPSS Inc, New York). The statistical significance was accepted at $p< 0.05$.

RESULTS AND DISCUSSION

Proximate Composition of Flour Samples
The results of the proximate composition of the flour samples is presented on Table 2. The moisture content of the flour blend ranged from 9.06 to 10.09% as compared to wheat flour (control) which had 10.27%. Samples with 20% coconut inclusion had the least amount of moisture content and the sample without coconut had the most amount of moisture content. The moisture content of flour is important for two reasons. First the higher the amount of moisture content the less the amount of dry solids in the flour [14].

Secondly, flour with moisture content higher than 14% is not stable at room temperature as this is prone to microbial spoilage. The moisture content of all flour blends were within the acceptable range of flour specification [15].

Ash content is an indication of the minerals present in the flour samples and it ranges from 0.50 to 0.97% as compared to wheat flour which had 1.0% ash content. There was no significant difference p<value. The ash content increased as the coconut inclusion increased [16]. The protein content ranges from 11.50% to 13.13% as compared to the value obtained from wheat flour which had a protein content of 10.26% which was the least. The partial substitution of wheat flour by non-wheat flours such as Coconut slightly increases the protein content. Barrett *et al*. [17] stated that incorporation of coconut flour into wheat flour improves the protein content of composite flour and thus

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improves the nutritional status of food items such as bakery products made from composite flour.

The fat and fibre contents also followed a similar trend [17]. The carbohydrate content of the flour ranges from 71.97% to 72.89% when compared to wheat flour (100%) which had 73.15%. There was no significant difference in the carbohydrate content of the flour samples. The carbohydrates content reduced as the coconut flakes inclusion increased.

Pasting Properties of Flour blends

The pasting properties of starch depend on the amylose content of the flour along with the amount of non- starchy components (protein and fat) and processing techniques [18]. Table 3 shows the effect of coconut flour enrichment on the pasting properties of wheat flour blends. The Peak Viscosity (PV) gives an indication of the strength of paste induced by the swelling of the starch granules and it is also the maximum viscosity that is developed during heating [14, 19]. The results showed that 20% blend had the highest peak viscosity, through breakdown and final viscosity and setback from 1681 RVU to 2580, 1161 to 1767, 520 to 818, 1689 to 2645 and 528 to 878 respectively. These values were found to be significantly different from each other ($P < 0.05$). Addition of coconut flakes increased the peak viscosity, through breakdown and final viscosity values. This may be due to the fact that coconut flour contains a considerable amount of fat and also there may be some interference of high fiber in coconut flour [20]. It is important to note that a high PV can be associated with good textural property of paste and this also shows that such flour will be applicable for food products that are requiring high gel strength. Moreover, it is indicative of the water binding capacity of the flour's starch mixes. This parameter can be used to correlate the final product quality of foods made from flour [21]. Therefore, coconut flakes used in this study were poor in this regard. Breakdown viscosity is an important parameter which indicates the stability of the paste. It explains the ability of flour to withstand controlled heating and application of shear during food processing [19]. The higher the breakdown viscosity, the lesser the ability of the flour to withstand shear and heat during cooking, and vice versa. The results showed that sample CWB8.5 will be more stable to withstand heat during cooking. The setback viscosity can be defined as the difference between the final viscosity and the trough viscosity or strength viscosity. It shows an indication for the potential of retrogradation and gel stability. The higher the setback viscosity value, the higher the tendency for retrogradation during period of cooling [22]. This by extension has an effect on the staling rate of products made from such flours. The setback viscosity of the flour samples ranged from 442 to 878 with 15% CF also having the lowest value of 442. The results showed that wheat flour only and CWB8 would show a greater retrogradation and by extension faster spoilage when used in food application. While blends of wheat and coconut at CWB8.5 would be more relatively stable. Final viscosity is an important parameter that is used to determine the gel forming ability of flour after a period of progressive cooking and cooling [23]. The final viscosity varied from 1434RVU to 2643 RVU where CWB8.5 blends had the least. The pasting properties of the flour samples indicated that the coconut flakes as defined in this study have poor and uncharacteristic pasting profile when compared to the wheat flours. This is because coconut flakes have limited use in

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bakery products such as breads, cakes etc. except when used in combination with food improvers or in composite ratio with other flour samples with better pasting properties. Highest peak time of 4.40 among the blends were obtained in CWB8, whereas the effect of the coconut flakes were not significant ($P > 0.05$) both on the pasting time and pasting temperature. This may be attributed to the limited starch content of the coconut grits therefore the physical reduction of starch available in the continuous phase of the sample may have reduced the resulting viscosity.

Mineral Composition of Flour Samples

The results of the mineral composition of the flour samples are presented in Table 4. Minerals are inorganic substances necessary for maintaining good health, regulation of fluid and acid base, water balance in the body depends to a great extent on certain mineral balance in the body. Calcium is necessary for building strong bones and teeth, aids clotting of blood and also keeps heartbeat normal. There was a significant difference ($p < 0.05$) in the calcium content of the flour blends with 20% coconut flakes (CWB8) having the highest value of 16.94/kg while the control had the lowest value of 10.93mg/kg. Magnesium plays an important role in maintaining normal nerves and muscle function [24]. There was a significant difference ($p<0.05$) in the Magnesium content of the flour samples. The value ranged from 58.03mg/kg found in 10% coconut flakes substitution to 63.00mg/kg found in 80% coconut flakes substitution. The addition of coconut flakes increases the Magnesium content of the flour samples. The 100% flour sample (Control) had the least value of Magnesium content which is 53.14mg/kg.

Potassium is needed for proper fluid balance, nerve transmission, and muscle contraction. The addition of coconut flakes increases the Potassium content in the flour. The 100% flour sample (Control) had the least value of Potassium content which is 90.94mg/kg. Basically, coconut substituted samples had higher concentration of mineral elements. Coconut has been reported to contain an appreciable amount of mineral elements [24].

Storage stability and acceptability of the Bread produced from Coconut Flakes

Storage stability and acceptability Test (Week 1)

The results for the sensory evaluation is presented in Table 5.1. Samples CWB8 and CWB8.5 had the highest values of Appearance, taste, texture, flavour and overall acceptability in week one. For overall acceptability, Sample CWB8 was the most preferred with a value 7.76 which was not significantly different ($p>0.05$) from Sample CWB8.5.

Storage stability and acceptability Test (Week 2)

From the result of week 2 storage stability test, it was observed that sample CWB8 had the highest ratings in most sensory attributes. Sample A which was the control had the least values for storage stability in most attributes when compared with the other samples at under ambient condition. Oraganoleptic characteristics were slightly changed during storage. This may be due to the non-enzymatic browning reaction and fat oxidation as reported by Porter [25]. Samples that were stored in the freezer had the

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highest value rating in all attributes in appearance, taste, texture, flavor and overall acceptability. It was observed that samples stored in the fridge had the second highest rating in all sensory attributes and samples stored in ambient temperature became moldy and were discarded. Jarvis [26] found that mold spoilage caused undesirable odours and is often found on the surface of the product.

Storage stability and acceptability Test (Week 3)
The results of week 3 shows that Sample CWB8 stored in the freezer had the highest value rating in appearance, taste, texture, flavor and overall acceptability. Sample CWB8 stored in the fridge scored less values in taste and overall acceptability due to the gradual process of staling. The values of sample CWB9 stored in the freezer and those stored in the fridge were significantly different and these samples scored the least value in the week 3 sensory evaluation but had higher values compared with the results of week 1. Sample CWB8.5 had the next highest value rating after Sample CWB8. Sample AWB (Control) had the least value.

Storage stability and acceptability Test (Week 4)
From Week 4 result of the sensory and storage stability test, the sensory attributes and acceptability of the samples decreased gradually. It was seen that the values of each attributes at each storage condition are at the lowest here compared with the values of week 1,2, and 3. The values of Sample CWB8 stored in the freezer had the highest values in appearance, taste, flavor and overall acceptability. All sample stored in the fridge scored less in the taste, texture and overall acceptability due to staling of the sample. Sample CWB8 had the highest storage stability.

Microbial count of bread made from flour blends
The total viable count is the total number of bacteria able to grow in an aerobic environment in moderate temperature. It is an indicator of quality, not safety, and cannot directly contribute towards a safety assessment of ready-to-eat. In addition, it can also provide useful information about the general quality and remaining shelf life of the food, and thus highlight potential problems of storage and handling [27]. Week 1 result of microbial analysis during storage shows that there was no growth both in the nutrient agar plates for bacteria count and in the potato dextrose agar plate for fungi count. The microbial growth were below detectable limit. Week 2 result for microbiological analysis during storage stability depicts that total viable count of the bread stored at ambient temperature were above the microbial limit with an evidence of moldy growth except samples stored in freezer and fridge. These losses could be due to many individual cases such as packaging sanitary, practices in manufacturing, storage condition and product turnover.The bacteria count ranged from 0 to 2.8 x 10^5 cfu/g for samples stored in Ambient temperature which was the highest while samples stored in fridge ranges from 0 to 0.18 x 10^2 cfu/g and samples stored in freezer ranged from 0 to 0.28 x 10^2 cfu/g. Week 3 result showed an increase in the microbial count of both fungi and bacteria phase but these were within the microbial count limit of 2.0 x 10^5 cfu/g. The bacteria ranges from 0.29 x 10^2 to 0.38 x 10^2cfu/g for samples stored in fridge and the samples stored in freezer range from 0.19 x 10^2 to 0.24 x 10^2 cfu/g.

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Week 4 result for the microbial analysis during the storage stability test also showed that the microbial range was still within the limit 2.0 x 10^5 cfu/g. The bacteria ranges from 0.22 x 10^2 to 0.38 x 10^3. In general, the microbial analysis showed that the levels of each microorganism increased with time. Temperature plays an important role in mold growth and in the germination of spores. Molds grow within a temperature range of 18.3 – 29.4^{0}C [28]. The samples stored in freezer had longer shelf stability than samples stored in the fridge. Therefore, cold storage in refrigerator is recommended to prevent mold growth, but this increases staling due to moisture reduction while freezer retards mold growths and reduce staling.

CONCLUSION

This research work showed that the substitution of coconut flakes with wheat flour at different levels affected the organoleptic and pasting properties of the flour sample. It is therefore concluded that 20% substitution level of coconut flakes to wheat flour was more acceptable. The microbial examination showed that samples stored at ambient temperature had microbial count that exceeded the acceptable limits and were discarded while samples stored in the freezer and samples stored in the fridge are within the acceptable limits. The sensory attributes of the bread shows that samples stored in the freezer retained its sensory and physicochemical characteristics and therefore was more preferred than samples stored in the fridge. However, freezer is the best storage condition for coconut bread.

From this study, enrichment with coconut flakes increased the nutritional benefits of the bread because of the increased protein and dietary fibre contents which acts as a prebiotic that helps probiotic bacteria thrive and encourages optimal digestion helping to prevent constipation.

It can, therefore, be recommended that coconut bread be consumed in order to maintain a healthy blood sugar. Coconut flour nutrition has health benefits for people with diabetes and those who are working toward reaching a healthy weight too.

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Table 1: Recipe for coconut bread production

INGREDIENTS	QUANTITY (g)
Wheat Flour	500
Sugar	70
Butter	20
Yeast	2.5
Salt	9
Water	250 (ml)
Improver	2

Source: Food processing manual (Bells University), 2019

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Table 2: Proximate composition of flour blends

Parameters (%)	AWB	CWB8	CWB8.5	CWB9
Moisture content	10.27^{b}	9.06^{a}	9.50^{ab}	10.09^{b}
Ash	0.99^{c}	0.50^{b}	0.39^{a}	0.49^{b}
Protein	10.26^{a}	12.63^{c}	12.24^{bc}	11.50^{b}
Fibre	0.23^{a}	0.42^{b}	0.36^{b}	0.29^{a}
Fat	2.23^{a}	7.79^{c}	5.45^{b}	6.13^{b}
Carbohydrate	76.02^{b}	69.60^{ab}	72.06^{b}	71.50^{a}

Values with same letters in a column are significantly different (P < 0.005)
Values with different letters in the same column are not significantly different at (P>0.05)
AWB: 100% Wheat flour
CWB8: 80%Wheat flour + 20% Coconut flakes
CWB8.5: 85%Wheat flour + 15% Coconut flakes
CWB9: 90%Wheat flour + 10% Coconut flakes

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Table 3: Pasting properties of flour samples

Parameters	AWB	CWB8	CWB8.5	CWB9
Peak Viscosity (RVU)	1481[c]	2580[a]	1367[d]	1681[b]
Through (RVU)	824[d]	1767 [a]	992[c]	1161 [b]
Break Down (RVU)	657[b]	818[a]	376[d]	520[c]
Final Viscosity (RVU)	1814[b]	2645[a]	1434[d]	1689[c]
Setback (RVU)	990[a]	878[b]	442[d]	528[c]
Pasting Time (min)	5.73[a]	4.40[b]	4.40[b]	4.27[b]
PT ($0\ ^0$C)	87.25[a]	79.25[b]	80.75[b]	80.00[b]

Values with same letters in a column are significantly different ($P < 0.005$)
Values with different letters in the same column are not significantly different at ($P> 0.05$)
AWB: 100% Wheat flour
CWB8: 80%Wheat flour + 20% Coconut flakes
CWB8.5: 85%Wheat flour + 15% Coconut flakes
CWB9: 90%Wheat flour + 10% Coconut flakes
PV: Pasting Viscosity
PT: Pasting Temperature

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Table 4: Mineral Composition of Flour blends

Parameters	AWB	CWB8	CWB8.5	CWB9
Magnesium	53.14[a]	63.00[d]	59.95[c]	58.03[b]
Calcium	10.93[a]	16.94[d]	15.82[c]	15.14[b]
Sodium	18.16[a]	30.27[d]	27.02[c]	21.80[b]
Potassium	90.94[a]	246.53[c]	246.10[c]	146.65[b]

Values with same letters in a column are significantly different (P < 0.05)
Values with different letters in the same column are not significantly different at (P> 0.05)
AWB: 100% Wheat flour
CWB8: 80%Wheat flour + 20% Coconut flakes
CWB8.5: 85%Wheat flour + 15% Coconut flakes
CWB9: 90%Wheat flour + 10% Coconut flakes

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Table 5.1: Storage Stability and Sensory Acceptability Test (Week 1)

Samples	Appearance	Taste	Texture	Flavour	Overall acceptability
AWB	7.23[a]	6.16[a]	6.11[a]	7.00[b]	7.10[a]
CWB8	7.59[a]	8.57[d]	6.50[b]	8.51[b]	7.76[c]
CWB8.5	7.56[c]	8.32[d]	6.36[c]	7.20[a]	7.71[d]
CWB9	7.41[b]	6.36[a]	7.03[d]	7.08[a]	7.21[a]

Values with same letters in a column are significantly different (P < 0.05)
Values with different letters in the same column are not significantly different at (P> 0.05)
AWB: 100% Wheat flour
CWB8: 80%Wheat flour + 20% Coconut flakes
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Table 5.2: Storage Stability and Sensory Acceptability Test (Week 4)

Samples	Appearance	Taste	Texture	Flavour	Overall acceptability
AWB/Freezer	6.34[c]	6.16[b]	6.01[c]	6.83[b]	7.06[a]
AWB/Fridge	5.67[a]	5.54[a]	5.89[a]	6.32[a]	6.07[b]
CWB8/Freezer	6.56[c]	7.60[a]	5.86[a]	7.5[1]	7.10[a]
CWB8/Fridge	5.57[a]	6.78[a]	6.00[c]	7.34[c]	6.34[c]
CWB8.5/Freezer	6.05[a]	7.00[a]	5.67[b]	7.30[c]	7.08[a]
CWB8.5/Fridge	5.54[b]	6.52[c]	5.78[a]	6.33[a]	6.42[c]
CWB9/Freezer	6.03[a]	6.57[c]	6.73[a]	7.21[a]	7.06[a]
CWB9/Fridge	5.42[a]	6.00[b]	5.93[b]	6.53[b]	6.47[c]

Values with same letters in a column are significantly different (P < 0.005)
Values with different letters in the same column are not significantly different at (P> 0.05)
AWB: 100% Wheat flour
CWB8: 80%Wheat flour + 20% Coconut flakes
CWB8.5: 85%Wheat flour + 15% Coconut flakes
CWB9: 90%Wheat flour + 10% Coconut flakes

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Table 6.1: Microbial Count of Bread Samples during Storage Stability testing (Week 4)

Samples/Storage	Bateria Count (cfu/g)	Fungi Count (cfu/g)
AWB/Freezer	0.22×10^2	0.18×10^2
AWB/Fridge	0.35×10^3	0.21×10^2
CWB8/Freezer	0.28×10^2	0.25×10^2
CWB8/Fridge	0.45×10^3	0.40×10^2
CWB8.5/Freezer	0.30×10^2	0.19×10^2
CWB8.5/Fridge	0.41×10^2	0.32×10^2
CWB9/Freezer	0.27×10^2	0.20×10^2
CWB9/Fridge	0.38×10^2	0.27×10^2

AWB: 100% Wheat flour
CWB8: 80%Wheat flour + 20% Coconut flakes
CWB8.5: 85%Wheat flour + 15% Coconut flakes
CWB9: 90%Wheat flour + 10% Coconut flakes

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