PRODUCTION AND NUTRITIONAL EVALUATION OF JACKFRUIT JAM AND DEVELOPMENT NEW PRODUCT BY USING JACKFRUIT JAM

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Roll No: 0117/15

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A thesis submitted in the partial fulfillment of the requirements for the degree of Master of Science in Food Chemistry and Quality Assurance

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The Author
February, 2019

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This is to certify that we have examined the above Master's thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made.

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DEDICATED TO MY RESPECTED AND BELOVED PARENTS, TEACHERS AND BROTHERS

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List of Abbreviation

Abbreviation	Elaboration
%	Percentage
BBS	Bangladesh Bureau of Statistics
g/gm	Gram
mg	Milligram
kg	Kilogram
TSS	Total Soluble Solid
N and S	North and South
°	Degree
°C	Degree Celsius
mm	Millimeter
β	Beta
CI	Confidence Interval
NaOH	Sodium Hydroxide
TTA	Total Titrable Acidity
DCIP	2,6 Dichlorophenol
°C/hr	Degree Celsius Per Hour
HCl	Hydrochloric Acid
cm	Centimeter
KOH	Potassium hydroxide
M	Molarity
Conc.	Concentration
N	Normality
W	Weight
ml	Milliliter
ICUC	International Centre for Underutilized Crops
mg/100g	Milligram Per Hundred Gram
mg/kg	Milligram Per Kilogram
MJ	Mega joule

ppm	Parts Per Million
CRD	Complete Randomized Design
SBC	Sodium Bicarbonate
SAPP	Sodium Acid Pyrophosphate
CVASU	Chattogram Veterinary Animal Sciences University
ANOVA	Analysis of Variance
SPSS	Statistical Package for the Social Sciences
SAS	Statistical Analysis System
PSPP	Program for Statistical Analysis
SOFA	Open-source Statistical Package
NPD	New Product Development
SD	Standard Deviation
Std.	Standard
FDA	Food and Drug Administration
WFP	World Food Programme
g/100g	Gram Per Hundred Gram
NGO	Non-governmental Organizations

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Abstract

This study aimed at producing and characterizing of jackfruit (*Artocarpus heterophyllus*) jam, by extracting pulps from jackfruits obtained from Reazuddin Bazar, New Market, Chattogram. Produced pulp was mixed with prepared lemon juice, ascorbic acid, pectin, color, citric acid, potassium metabisulfite and sugar and allowed to cook on constant boiling/stirring until ready for set at 69% brix. Wheat flour, xanthen gum, custer sugar, salt, SAPP, SBC, liquid glucose, potassium sorbet, cake mix, egg and plam oil was used for cake production. Produced jam was injected to produce cake for preparation of jackfruit jam cake. Ten untrained panelists performed sensory and general acceptability test using 7 point hedonic scale of the developed jam together with commercial mango jam as control. Ten untrained panelists also performed sensory and general acceptability test using 7 point hedonic scale of the developed jam cake together with commercial cake as control. The results revealed no significant difference (P>0.05) in mean hedonic score between developed jackfruit jam, jackfruit jam cake and control. Consumer studies showed significant differences (P>0.05) in color, aroma, spread ability and sweetness attributes between jackfruit jam and the commercial mango jam. Consumer studies also showed significant differences (P>0.05) in color, aroma, mouthfeel and texture attributes between jackfruit jam cake and the commercial cake. Jackfruit jam had very concentrated orange yellow color compared to control mango jam which had faint color and jackfruit jam was slightly sweeter compared to mango jam. Jackfruit jam had bright color, it spread well and had strong aroma compared to control. Proximate analysis of fresh jackfruit showed protein (3.80%), carbohydrate (17.83%), ash (0.60%), crude fat (1.90%), crude fiber (0.95%), moisture content (74.89%), pH (5.20), vitamin C (6.23 mg/100g) and total acidity of (0.07 g/100g). Jackfruit jam indicated carbohydrate (59.97%), protein (3.40%), crude fat (1.97 %), ash (0.45 %), moisture content (33.40%), crude fiber (0.80%), vitamin C (13 mg/100g), pH (3.80) and total acidity of (0.43 g/100g). Mineral contents were slightly higher in fresh jackfruit compared to the developed jackfruit jam. The information obtained from this study concluded that jackfruit has shown favorable sensory attributes that can be used for jam making and other processed products to add value to the fruit.

Keyword : Jackfruit, Jam, Cake, Proximate Composition, Mineral, Brix.