



**THE EFFECTS OF FIGS AS SUGAR SUBSTITUTE ON
PHYSICOCHEMICAL PROPERTIES OF SOYMILK ICE
CREAM**

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of
Bachelor of Technology (B.Tech) in the field of Food Technology School of
Industrial Technology Universiti Sains Malaysia

July 2020



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JULY 2020

AKNOWLEDGEMENTS

First of all, I would like to express my deepest gratitude to my supervisor, Dr. Nor Shariffa Binti Yussof for her valuable guidance and advice throughout my research work. Without her dedication, this thesis would not be possible.

My heartfelt appreciation also goes to the lab assistant, Mr. Firdaus, Mr. Ghoni, Mr. Rahim, and Mr. Maarof for guiding me to operate the equipment and giving valuable suggestions. Special thanks to the School of Industrial Technology for allowing me to use all the equipment throughout the research.

Next, I would like to thank my fellow coursemates and friends who have given me help, support, and encouragement throughout the entire period of my research. Last but not least, I owe my deepest gratitude to my family members who always provide me continuous love and moral support. This journey would not possible without them.

MUHAMMAD HAZIM BIN ROMLI

JULY 2020

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LIST OF ABBREVIATIONS

Abbreviation	Caption
ANOVA	Analysis of variance
AOAC	Association of Official Analytical Chemist
Eq.	Equation
GI	Glycemic index
h	Hour
min	Minute
SD	Standard deviation
T1	Soymilk ice cream with ratio of fig syrup to sucrose (0:10)
T2	Soymilk ice cream with ratio of fig syrup to sucrose (2:8)
T3	Soymilk ice cream with ratio of fig syrup to sucrose (5:5)
T4	Soymilk ice cream with ratio of fig syrup to sucrose (8:2)
T5	Soymilk ice cream with ratio of fig syrup to sucrose (10:0)
USDA	United States Department of Agriculture

KESAN PENGGUNAAN BUAH ARA SEBAGAI PENGGANTI GULA TERHADAP FIZIKOKIMIA AIS KRIM SOYA

ABSTRAK

Gula yang digunakan untuk memaniskan makanan dikaitkan dengan indeks glisemik tinggi dan sering disalahkan kerana menyumbang kepada kenaikan berat badan dan penyakit kronik seperti diabetes jenis 2 dan barah pankreas. Untuk mengatasi masalah ini, sirap ara yang diperoleh dari pengambilan buah ara digunakan sebagai pengganti gula dalam ais krim soya. Kajian ini dirancang untuk mengkaji kesan sirap ara sebagai pengganti gula terhadap sifat fizikokimia ais krim soya. Lima formula ais krim soya yang berbeza dengan nisbah sirap ara kepada sukrosa (0:10, 2: 8, 5: 5, 8: 2, dan 10: 0) dihasilkan. Protein, lemak, abu, keasidan yang dapat dititratkan, jumlah pepejal larut dan keamatan warna coklat gelap meningkat dengan ketara ($P < 0,05$) dengan peningkatan penggantian sirap buah ara. Kelembapan, karbohidrat, kegebuhan dan nilai pH telah menurun dengan ketara ($P < 0,05$) dengan peningkatan penggantian buah ara. Walau bagaimanapun, peratusan berlebihan ais krim soya yang dihasilkan dengan penggantian buah ara mencatatkan 32.96% masih lebih rendah berbanding dengan ais krim komersial yang disarankan, bermaksud ais krim susu soya yang dihasilkan mempunyai tekstur yang kurang halus. Kandungan protein dalam ais krim soya dengan jumlah buah ara yang tinggi mencatatkan 5.29% telah melepasi nilai yang disyorkan ais krim untuk dikategorikan sebagai ais krim berkualiti tinggi. Lebih lagi, warna aiskrim susu soya berubah menjadi warna coklat gelap ketika penggantian ara meningkat dan ara memberikan intensiti masam yang tinggi kerana pigmen karotenoid dan asid sitrik hadir ketika penggantian nisbah ara meningkat. Secara keseluruhan, buah ara boleh digunakan sebagai pengganti gula untuk memberi rasa manis dan meningkatkan sifat fizikokimia ais krim.

THE EFFECTS OF FIGS AS SUGAR SUBSTITUTE ON PHYSICOCHEMICAL PROPERTIES OF SOYMILK ICE CREAM

ABSTRACT

Sugar that is used to sweeten food is associated with a high glycemic index and often blamed for contributing to weight gain and chronic diseases such as type 2 diabetes and pancreatic cancer. To address this issue, fig syrup obtained from the extraction of fig fruit was used as sugar substitution in the soymilk ice cream. This study was designed to examine the effects of fig syrup as a sugar substitute on the physicochemical properties of soymilk ice cream. Five different formulations of soymilk ice cream with different fig syrup to sucrose ratio (0:10, 2:8, 5:5, 8:2, and 10:0) were produced. The protein, fat, ash, titratable acidity, total soluble solid and intensity of dark brown colour were increased significantly ($P<0.05$) by the increased of fig syrup substitution. The moisture, carbohydrates, overrun and pH value has decreased significantly ($P<0.05$) with the increased of fig substitution. However, the overrun percentage of the soymilk ice cream produced with fig substitution recorded 32.96% is still lower compared to the recommended of commercial ice cream, means the soymilk ice cream produced have less smooth texture. The protein content in the soymilk ice cream with high amount of fig recorded 5.29% had surpassed the value recommended of the ice cream to be categorized as high quality ice cream. Moreover, the colour of the soy milk ice cream turned into darker brown colour as the fig substitution increased and the fig gave high sour intensity due to the carotenoids pigment and citric acid present respectively as the fig ratio substitution increase. Overall, fig could be used a sugar substitute to sweeten and enhance the ice cream properties.