PRODUCTION AND EVALUATION OF LOW FAT
BEEF BURGER USING THE ORANGE ALBEDO
AS A PARTIAL FAT REPLACER

By

AHMED ADEL AHMED SAYED BAIOUMY
B.Sc. Agric. Sci. (Food Science), Fac. Agric., Cairo Univ., 2007

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APPROVAL SHEET

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DEDICATION

I dedicate this work to whom my heart felt thanks to my father's spirit who planted in me the education liking and my mother who does her best for us. Also, to people have a great appreciation in my life and to my brothers for their support and to my best friends ever for all the support they lovely offered along the period of my study and my life.
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Thanks to Allah who granted me the ability to perform this work and helped me to pass through all the difficulties, I thought impossible to overcome. I feel always indebted to Allah, the most beneficent and most merciful.

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Finally, thanks are due to all staff members in Food Science Department, Faculty of Agriculture, Cairo University for their help and support.
ABSTRACT

The quality attributes of low fat beef burger manufactured with different levels of fresh orange albedo as a partial fat replacer were studied. Chemical properties, cooking yield, water holding capacity, pH, and sensory evaluation were determined. Frozen meat was obtained from local market and five levels of added kidney fat (15, 12.5, 10, 7.5, and 5%) were used. Also fresh orange albedo levels as a partial fat replacer (0, 2.5, 5, 7.5, and 10%) were used. After manufacturing all samples were stored at -18 °C for 4 months in order to be evaluated chemically, physically, bacteriologically and sensory. The main results can be summarized as follows:

Increasing the level of orange albedo caused an increase in moisture, fiber, ash content and decrease in fat content and no noticeable difference in protein; also thiobarbituric acid (TBA) values were decreased because of replacing the animal fat with the fresh orange albedo. Water-holding capacity, plasticity and cooking yield increased as a result of increasing the level of orange albedo.

Sensory evaluation had done by panelists and they scored for taste, odor, texture and color. The sensory properties and overall acceptability were improved by using 5 and 7.5% of fresh orange albedo. All of obtained data were statistically analyzed with significance level (p ≤ 0.05). It was concluded that using of orange albedo has a prospective effect as a functional ingredient to develop the properties of beef burger. And the caloric value of beef burger also decreased by decreasing added fat and replacing it by orange albedo which has low caloric content and this could be useful for some people who suffer from obesity and cardiovascular diseases.

Key words: Low fat, Beef burger, Orange albedo, Fat replacers.
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