

# Qualitative Assessment of Frying Oil and Microbial Analysis of Fast Foods on Public Health Perspective



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Technology

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June 2019

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**June 2019**

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

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**The Author**

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## List of abbreviations

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PRTC.....	Poultry Research and Training Centre
ml.....	Mili Litre
PV.....	peroxide value
CVASU.....	Chattogram Veterinary And animal Sciences University
IU.....	International Unit
PV.....	Peroxide Value
<sup>0</sup> C.....	Degree Centigrade
CAC.....	Codex Alimentarius Commission
µg.....	Microgram
FAO .....	Food and Agriculture Organization
IV.....	Iodine value
e.g.....	Example
et al.....	And his associates
OIE.....	Office International des Epizootics
% .....	Percentage
i.e. ....	That is
Sig. ....	Significance
Ref. ....	Reference
MS .....	Master of Science
WHO.....	World Health Organization
Ppm.....	Parts Per Million

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## Abstract

One of the most popular methods of food preparation is frying. Since in fast food restaurants the oil is heated for prolonged and repeated periods of time, toxic compounds in oils likely go up to very high concentrations. In-use frying oils were collected from ten randomly selected restaurants in Chattogram city, Bangladesh. In this study, we investigated chemical quality of oils that was used for frying in fast food restaurants and analyzed microbial load of some types of fast food on public health perspective. The chemical properties of frying oils were determined as saponification value, peroxide value, acid value, and iodine value. A significant difference ( $P < 0.05$ ) was found in all characteristic parameters of different oil samples. The highest saponification value of frying oil was found in sample 9 (264mg KOH/g) in the evening period and lowest value was found in sample no.10 (203.43mg KOH/g) in morning period. The range of peroxide value was between 14.25-29.58 meq  $O_2$ /kg in morning and in evening it was between 15.09-30.53 meq  $O_2$ /kg. Sample 4 had the highest acid value (5.67 mg KOH/g) in evening and sample 2 had the lowest acid value (1.60 mg KOH/g) in morning. Changes in iodine value for the collected samples of the used frying oil was significantly decreased. The highest iodine value in the morning was in sample 6 (35.04g  $I_2$  /100g) and in evening the value was (34.40g  $I_2$ /100g). Codex standard for iodine value is 50-55 g  $I_2$  /100g for palm oil. Taking consideration of all parameters the study concluded that evening frying oil had lower quality than morning samples. The colony forming unit of microbiological sample indicates that some brand of fast food shop burger and sandwich has much bacterial load that indicates those brand of fast food is harmful for human health.

**Key words:** Frying oil, fast food, saponification value, iodine value, peroxide value, acid value, microbiology, public health