



**COMPARATIVE EVALUATION OF  
NUTRITIONAL COMPOSITION AND  
FUNCTIONAL PROPERTIES OF TWO  
VARIETIES OF WATERMELON SEED IN  
BANGLADESH**

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Roll No.: 0118/16

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**A thesis submitted in the partial fulfillment of the requirements for the degree of  
Masters of Science in Applied Human Nutrition and Dietetics**

**Department of Applied Food Science and Nutrition  
Faculty of Food Science and Technology  
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Chattogram-4225, Bangladesh**

**December 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  
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## List of Abbreviations

<b>Abbreviations</b>	<b>Elaboration</b>
<b>%</b>	: Percentage
<b>AOAC</b>	: Association of Official Analytical Chemists
<b>g</b>	: Gram
<b>mg</b>	: Milligram
<b>µg</b>	: Microgram
<b>Kcal</b>	: Kilo Calorie
<b>ppm</b>	: Parts Per Millions
<b>WAC</b>	: Water Absorption Capacity
<b>OAC</b>	: Oil Absorption Capacity
<b>EA</b>	: Emulsion Activity
<b>ES</b>	: Emulsion Stability
<b>FA</b>	: Foam Activity
<b>FS</b>	: Foam Stability
<b>SD</b>	: Standard Deviation
<b>SPSS</b>	: Statistical Package for Social Science
<b>CVASU</b>	: Chattogram Veterinary and Animal Sciences University
<b>USA</b>	: United State of America

## Abstract

The study was carried out to investigate the nutritional composition and functional properties of two varieties seed of Watermelon such as Crimson red and Charleston gray with a view of harnessing them for consumption as food and possible industrial usages. The dried seeds were evaluated by using standard method for different characteristics such as nutritional, phytochemical and functional properties to perceive the potential benefits of that seed. The result of the two varieties (Crimson red and Charleston gray) of Watermelon seed indicated that both varieties of Watermelon seed were rich in energy ( $469.60 \pm 0.01$  Kcal/100g,  $408.85 \pm 0.01$  Kcal/100g), crude fat ( $36.61 \pm 0.01\%$ ,  $30.65 \pm 0.01\%$ ), crude protein ( $27.21 \pm 0.01\%$ ,  $22.51 \pm 0.01\%$ ), crude fiber ( $21.55 \pm 0.01\%$ ,  $29.85 \pm 0.01\%$ ) and minerals in mg/100g such as phosphorus ( $540.33 \pm 0.57$ ,  $320.33 \pm 0.57$ ), magnesium ( $360.33 \pm 0.57$ ,  $310.33 \pm 0.57$ ), calcium ( $124.33 \pm 0.57$ ,  $28.33 \pm 0.57$ ), iron ( $20.13 \pm 0.006$ ,  $14.24 \pm 0.006$ ), potassium ( $20.67 \pm 0.006$ ,  $6.64 \pm 0.006$ ) and phytochemical compound such as crude alkaloid ( $14.05 \pm 0.006\%$ ,  $10.56 \pm 0.006\%$ ) respectively. In comparison, the crude fat, crude protein, energy and crude alkaloid were found to be high in amount in the Crimson red seed compared to Charleston gray seed variety. On the other hand, the crude fiber was higher in Charleston gray variety seed. The present study revealed that both varieties of Watermelon seed characterized with good functional properties. Therefore, watermelon seed can be incorporated in formulation of food for consumption and industrial purpose as well.

**Keyword:** Watermelon seed, nutritional composition, phytochemical compound, functional properties.