

Apr 11th, 8:30 AM - 11:30 AM

Evaluation of the Cost Effectiveness, Protein Composition, and Acceptability of Peanut Butter Protein Bites Prepared with Cricket Powder, Plant-Based Protein Powder and Whey Protein

Catherine Fontenot
Louisiana Tech University

Emily Buzulak
Louisiana Tech University

Olivia Hirsch
Louisiana Tech University

Desirae Bedgood
Louisiana Tech University

Follow this and additional works at: <https://digitalcommons.latech.edu/ans-research-symposium>

Recommended Citation

Fontenot, Catherine; Buzulak, Emily; Hirsch, Olivia; and Bedgood, Desirae, "Evaluation of the Cost Effectiveness, Protein Composition, and Acceptability of Peanut Butter Protein Bites Prepared with Cricket Powder, Plant-Based Protein Powder and Whey Protein" (2019). *ANS Research Symposium*. 53.

<https://digitalcommons.latech.edu/ans-research-symposium/2019/poster-presentations/53>

This Event is brought to you for free and open access by the Conferences and Symposia at Louisiana Tech Digital Commons. It has been accepted for inclusion in ANS Research Symposium by an authorized administrator of Louisiana Tech Digital Commons. For more information, please contact digitalcommons@latech.edu.

Evaluation of the Cost Effectiveness, Protein Composition, and Acceptability of Peanut Butter Protein Bites Prepared with Cricket Powder, Plant-Based Protein Powder and Whey Protein

Catherine Fontenot¹, PhD, RD, LDN¹; Emily Buzulak²; Olivia Hirsch²; Desirae Bedgood²

¹*Assistant Professor, School of Human Ecology, Louisiana Tech University*

²*Nutrition & Dietetics, Louisiana Tech University*

It is prudent for Americans to focus efforts in developing services and products that conserve natural resources, lessen the human carbon-footprint, and using products and processes that sustainable and renewable. Over the years researchers have developed genetically modified (GMO) plants that endure severe weather conditions and/or produce greater yields to meet the demands of the growing population. But, GMOs have been met with resistance from consumers. Researchers have worked to find natural alternatives that satisfy the health concerns and environmental demands of an ever-growing population. Insects are commonplace in the diet of many cultures. Specifically, crickets have been considered to be part of the solution to the challenges that come with feeding the masses as they require minimal resources to grow and harvest, and are inexpensive to farm. Cricket flour made with 100% crickets have 11 grams protein per 2 tablespoons, contain all essential amino acids and is an excellent source of vitamin B₁₂; ((Cricket Flours, 2019; Norris, 2019). Plant-based proteins have also gained popularity because they are an excellent source of protein for those choosing to follow a vegetarian-type diet and others who are consumed with levels of greenhouse gases associated with climate change (Armitage, 2019). Whey protein is one of two proteins found in cow's milk and has been available in powder form for many years and is very popular among athletes to help support lean muscle mass. The purpose of this project was to threefold: 1). enhance the protein content of peanut butter energy bites by adding cricket powder, plant-based protein, and whey protein to the standard recipe, 2). compare the overall taste-test panel overall acceptability of peanut butter energy bites prepared with the addition of cricket powder, plant-based protein, and whey protein to the standard recipe, and 3). compare the costs of each recipe prepared with cricket powder, plant-based protein, and whey protein to the control. The researchers prepared the recipes following the control recipe procedures for each recipe variation. Three laboratory experiences were conducted using a taste-test panel which was made up of fellow classmates. For each laboratory experiment, research members completed the same task for preparing the recipes to control for errors that would influence outcomes of the study.. The panelists used a scorecard to assess selected sensory qualities that included color, texture, flavor and overall acceptability of the four samples presented for each lab. Prior to each taste-testing, the researchers prepared a plate divided into four quadrants. A 1" X 1" sample was prepared by using a leveled tablespoon measure to scoop each variation. Samples were rolled between researchers palms to form a uniform, well-rounded ball and identified by a random number that was indicative of a specific recipe variation. Panelists used a scorecard for each sample using a scale ranging from one to three with one representing bitter/chalky/grainy/unappealing/would not eat again and three representing balance between sweet and salty/smooth mouthfeel/good ratio of oats and chocolate chips/would definitely eat again. Each recipe was adjusted according to the ratings of the samples and any comments that panelists may have communicated to the researchers using the scorecards. The final recipe of each variation was nutritionally analyzed using www.happyforks.com and the costs of each recipe was determined using grocery sales

receipts. The four panelist rated the recipe prepared with plant-based protein received an overall acceptability of 3.0 whereas the recipe with the cricket protein was the least acceptable by the panelist with a 2.7 overall acceptability. In terms of nutritional composition, the protein content was highest in the recipe using the whey protein yielding 2.9 grams compared to 1.9 grams protein in the control. The plant-based protein had 2.5 grams and the cricket protein variation had 2.7 grams. In terms of costs, the control was \$0.23 per serving and the cricket protein was \$0.29 per serving; the plant-based protein was \$0.23 and the whey protein was \$0.23 per serving. The limitations of this study were the limited time frame available to conduct the study and the limited access to panelists who were unfamiliar with this study. On the other hand, the strength of the study were access to the tools necessary to execute the study and availability of sufficient quantities of the ingredients needed to conduct each laboratory experiment. This study suggests that alternative proteins are viable options for enhancing the protein content of the current food supply. Additional research is necessary to determine consumer acceptability of different foods prepared with cricket powder, whey protein, and plant-based protein powder.