

Heat Treatment and Change in The Qualitative Characteristics of Frozen Beef Burger Offered in The Local Market

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Abstract

The study was conducted to evaluate the effect of heat treatment on the quality of beef burger offered in the local markets for different brands during the periods of freezing storage that included 0, 3 and 6 months. The highest moisture loss was observed for the BM4 brand, with a significant difference from some other brands. The heat treatment had an effect on the physical properties of pH, the ability to hold water, the loss in weight when cooking, and the shrinkage in diameter, whose values differed according to the brands and the storage period, and the peroxide value PV and Thiobarbutyric acid values TBA differed according to the brand, as noted. as regards to protein oxidation, tryptophan fluorescence, Schiff base fluorescence, protein carbonylation were affected by Heat treatment, and a decrease in the content of thiol, Instrumental color of beef burger was affected by the heat treatment, being closely related with Maillard products formation and metmyoglobin, cooked by grilling method varied according to the brand and the period of freezing storage.

Keywords: *Heat Treatment, Beef Burger, lipid oxidation, Protein oxidation, Tryptophan, Schiff base, Maillard.*

INTRODUCTION

Fast food is one of the foods most attracted to by different age groups, as the consumption of fast food has been linked to the lifestyle and concerns of modern daily life well as being prepared in different ways and easy to consume (Wazir et al., 2019) that meat is one of the basic materials for human nutrition, as it is an important nutritional vital substance It is defined as those animal tissues in which basic biological changes occurred after slaughtering the animal and became suitable for consumption. It is one of the few foods that

provide complete protein, fats, mineral elements such as phosphorus, copper, iron, and some vitamins such as vitamin B1 niacin, and thus it is a major part of an important diet. For humans (Dave and Ghaly, 2011; Abdel-Naeem et al., 2021; Al-Shibli et al., 2022) Burger is one of the most common and most popular fast food consumed by the consumer. Several ingredients are included in its composition, as minced meat is the main ingredient in addition to fat, spices and seasonings. (Elibaid, 2019). The consumer's acceptance of meat and its products is affected by their suitability for food. Therefore, heat