

A COMPARATIVE STUDY ON THE PHYSICOCHEMICAL, FUNCTIONAL AND PROTEIN ELECTROPHORETIC PATTERN OF OSTRICH MEAT AND BEEF DURING FROZEN STORAGE

SEPIDEH ALASVAND ZARASVAND¹, MAHMOUD AMINLARI^{1,2,5}, MAHDI KADIVAR³ and SHAHRAM S. SHEKARFOROUSH⁴

¹Department of food Science and Technology, Shiraz University, Shiraz, 71345, Iran

²Department of Biochemistry, School of Veterinary Medicine, Shiraz University, Shiraz 71345, Iran

³Department of Food Science and Technology, School of Agriculture, Isfahan University of Technology, Isfahan, Iran

⁴Department of Food Hygiene, School of Veterinary Medicine, Shiraz University, Shiraz, Iran

⁵Corresponding author. M. Aminlari, Department Biochemistry, School of Veterinary Sciences, Shiraz University, Shiraz 71345, Iran. TEL: 0098-711-2286950; FAX: 0098-711-2286940; EMAIL: aminlari@shirazu.ac.ir

Accepted for Publication July 18, 2011

doi:10.1111/j.1745-4514.2011.00602.x

ABSTRACT

The interest for new and emerging meats is rapidly growing. Ostrich meat has many nutritional and functional properties that make it superior to other types of meats. The purpose of this research was to evaluate changes in physicochemical and functional properties of ostrich meats (*m. iliofibularis*) and beef (*longissimus dorsi*) during storage at -18°C . Results showed that Warner–Bratzler shear force values, colorimetric parameters (L^* , a^* , b^*), pH and water-holding capacity significantly decreased by increasing storage time. Nitrogen solubility index increased after 3 months and decreased thereafter. Buffering capacity, emulsifying capacity, emulsifying stability, foaming stability and cooking loss increased during 6-month storage. Slight changes in sodium dodecyl sulfate–polyacrylamide gel electrophoresis pattern of myofibrillar proteins indicate protein denaturation followed by aggregation during prolonged frozen storage. Taken together, within the parameters of the present study, it is concluded that ostrich meat has superior functional attributes compared with beef initially and during the frozen storage.

PRACTICAL APPLICATIONS

Because of the superior quality and functional attributes of ostrich meat as compared with beef, the food industry should be aware of possible application of this excellent source of proteins to be included in human nutrition. To achieve this goal, ostrich meat should be evaluated in terms of possible alterations in different quality attributes during various processes, including prolonged frozen storage. In this work, changes in several functional properties of ostrich meat, especially those related to proteins are evaluated.

INTRODUCTION

The development of new and emerging meat industries provides many opportunities for agribusinesses and meat producers. Ostrich (*Struthio camelus*) production was initially developed in South Africa for feather production and, later, for leather. However, ostriches have been raised on other countries around the world to produce meat. The development of this sector opens the market for ostrich meat, and one

of its attractive characteristics is its novelty. This meat is novel not only for consumers, but also for those involved in its production, from geneticists and farmers to animal production researchers. The future of ostrich production is based on the idea of providing ostrich meat as an alternative for the consumption of traditional meats (Balog and Almeida Paz 2007). The ostrich industry markets fresh and frozen meat cuts, as well as processed meat products to a variety of markets. Most ostrich meat is marketed as individual muscles (Mellet 1996).