

Chapter 13

Camel Meat Nutrient Content and Potential Health Benefits

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ABSTRACT

Camels are an important source of nutritious meat and meat products for people, and therefore play a major role in the national economies of many countries. In comparison with other red meats, camel meat generally contains less fat and ash, more moisture, and similar protein content. Camel meat products are receiving worldwide interest owing to its unique healthy features and the ability of camels to thrive in climatic regions of the world that may be a challenge to many other meat-producing species. Camel meat products contain many essential nutrients and some components with potential bioactive properties that could be beneficial for human health and wellbeing. Continued improvements in the understanding and optimization of the production processes of camel meat are required for successful industrial implementation and marketing. Advances in ingredient systems may be used to manufacture new meat products from camel meat where higher levels of nutrition are required to enhance consumer health and wellbeing. Camel meat as a functional food is one area that can be exploited.

DOI: 10.4018/978-1-7998-1604-1.ch013

INTRODUCTION

The perception of meat consumers has changed over recent decades from considering meat simply as a source of required nutrients and energy to seeing meat as including health-promoting components. Therefore, a significant effort in the meat industry has led towards improving and characterizing the quality and healthiness of meat and meat products (Decker & Park, 2010). Generally, hotter climates adversely affect livestock through heat-stress effects on health, productivity, and fertility, but camels have adapted to produce quality meat (Chapter 12), fibers and milk even in the hottest and least favorable environmental conditions (Al-Abri & Faye, 2019; Bouhaddaoui et al., 2019). Opportunities exist to improve the nutritional and health features of camel meat products through processing or natural production or addition of natural functional substances. The healthiness and functionality of camel meat may be increased by adding ingredients, but such processes need to be tested for changes in taste, flavor, appearance, and consistency to ensure consumer acceptance (Pogorzelska-Nowicka, Atanasov, Horbańczuk, & Wierzbicka, 2018).

Camel meat products are well suited for consumers who are interested in nutritive values and health-boosting properties, while being averse to potentially toxic ingredients such as allergenic components, drug residues, intoxicants, and microbial contaminations, which may cause health problems. Conversely, consumers are interested in, and may pay more for, products enriched with health-promoting components such as bioactive compounds, which will improve their well-being.

This chapter aims to characterize the important nutrient components of camel meat and to consider future developments with camel meat and camel meat products. Approaches to enriching camel meat with natural health-boosting substances will be addressed.

NUTRIENT CONTENT OF CAMEL MEAT

An outline of the nutritional characteristics of camel meat is provided in Table 1 with an indication of why they are important for human nutrition and comments on special aspects with respect to the meat from camels. Details on individual nutrients are provided in subsequent sections.

Information on the proximate composition of camel meat and other meats in Table 2 illustrates that, except for fat content, camel meat composition is generally similar to meat from other meat-producing mammals such as cattle, sheep, and deer.

Moisture contents in camel meat widely varied (72.1 to 77.7%) with higher values generally being associated with lower fat percentages. Kadim et al. (2006) stated that with age, the moisture contents of the camel meat decreases. Ibrahim, Nour and Kadim (2015) reported small difference in moisture contents between 3-4- and 6-7-year-old camels across different muscles while Gheisari, Aminlari and Shekarforoush (2009) found no such difference in moisture contents between camel meat and meat from other species of similar gender and age. The protein content of camel meat ranges from 15.9 to 22.1% (Table 2), with meat from young camels containing similar protein percentages to those found in young cattle, goat and lamb meats (Kadim, Mahgoub & Purchas, 2008). Various studies have demonstrated that animal age affects fat content with higher fat contents found in camel meat from older animals (Kadim et al., 2006; Ibrahim, Nour & Kadim, 2015). Some other factors may also affect the fat content of camel meat within similar age groups (Kadim et al., 2006, 2008, 2009b, Kadim, Mahgoub, Al-Marzooqi, & Khalaf, 2009a). Camel meat has lower ash percentages than beef, goat and lamb meat (Kadim et al., 2008).

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