

Camel Meat Food and Medicine

Camels are one of the most fundamental pillars of the national economy and food security for many countries in the world, because it occupies a very important role in providing an important part of human food, especially meat, in order to fulfill the shortfall in the increasing demand for meat due to the rapid growth of human population and the increase of the demand for the foodstuffs. For this, majority of nations, particularly in some parts of Asia and Africa started it suffers from a lack of animal protein (especially the meat) and starvation began to increase in poor people, therefore the need became very urgent to increase the care for the animal husbandry for the purpose to increase the animal production, especially the care for camels breeding. The dromedary camel is a good source of meat especially in areas where the climate adversely affects the performance of other meat animals. This is because of its unique physiological characteristics, including a great tolerance to high temperatures, solar radiation, water scarcity, rough topography and poor vegetation. The camels are also characterized by its high efficiency in the metabolism process; this is because camels have the ability to transform the low quality plants (poor desert plants, thorny plants and the branches of the hard trees) with minimal nutritive elements, into high quality food products. The demand for camel meat appears to be increasing due to health reasons, as they produce carcasses with less fat as well as having less cholesterol and relatively high polyunsaturated fatty acids than other meat animals. There are 24,246,291 million one-humped camels in the world with 80% of them in Africa and the highest population in Somalia (7 million) and Sudan (4.25 million). In Asia about 70% of dromedaries are found in India and Pakistan.

THE PRODUCTION OF CAMEL MEAT

Camel produces a large quantities of meat compared to other farm animals, where the weight of a camel between 350-700 kg and the proportion of camel net meat is high as it varies by different factors such as age, type of nutrition and type of breeding, ranging from 43.6-62.7% and the proportion of fat and bones are zero-4.8% and 15.9-38.1% respectively. Camel's meat is a very important in arid and semi-arid regions in the world, where it constitutes an important resource for some countries such as Sudan, Somalia and Mauritania, as camels are considered more efficient than the other farm animals in the production of meat, where it represent about 8% of the meat production in the Arab countries. Male camels are slaughtered when they are 1-3 or even 4-5 years old, which is considered their best age for meat production. As they grow older, their meat becomes tougher and loses quality because of old fibers and muscles. Camel meat is known for its large muscular fibers and high percentage of water. It has a little sweet taste because of the presence of glycogen, and its color is red or dark brown. According to FAO statistics (2009), the production quantity of camel meat in the world has reached 351,548 tons/year. Africa (249206 tons/year) and Asia (102253 tons/year) have been formed 99 % of the production in the world. Sudan (49882 tons/year), Egypt (45000 tons/year), Somalia (44200 tons/year), Mauritania (22500 tons/year), United Arab Emirates (19853 tons/year) are representing the highest production of camel meats in the world.

GENERAL CHARACTERISTICS OF CAMEL MEAT

A number of studies conducted at SQU on the chemical composition and food value of camel meat have shown that it has two qualities which distinguish it from beef and mutton: its low fat and high moisture content. Fat in camel meat amounts to 1.2 per cent-1.8 per cent and in beef 4 per cent-8 per cent. The figure for water is 20 per cent. These percentages mean that camel meat is richer than beef in protein and minerals. Camel meat contains a high ratio of good quality of protein. Accordingly the moisture to protein ratios (M/P) of the camel and fish were higher than those of beef, lamb, goat and chicken. Camel meat is also a good source to many vitamins, especially vitamin B complex and important minerals such as iron, calcium and phosphorus. Camel meat is also characterized by low level of cholesterol (61 mg) as compared to other farm animals like beef (75-86 mg), making it a healthy food for humans. In comparison with the beef, camel meat is rich in the amino acids that are necessary to humans. Camel meat, especially young calves is similar in taste and texture to beef. The amino acids contents of camel meat are often higher than beef, probably due to lower intramuscular fat levels. In addition to that, the intersection of the fat within the muscles gives the marble appearance of the meat and improves its taste and food characteristics. Camel meat contain a high percentage of glycogen, so that it is used in many food industries such as mortadella, sausage, corned beef, sausages and shwarma. The meat of the old camels is hard and contain thick fibers, therefore they do not grill well on the fire or ripen easily when cooking, and that because of the increased strength of the interdependence between the fibers which reduces their vulnerability to heat and enzymes, for this reason are often advised slaughtered young camels that the meat more soft, and better taste than adult camels or aged. The camel meat is characterized by a red color and tasty which is similar to beef, especially smaller ones. The meat fat is creamy with yellow color and soft, smooth as compared to other farm animals. It was approved by many scientists that, there is a close relationship between cardiovascular diseases and increase intake of saturated fatty acids which are present in the fat of beef, buffalo, sheep and goats. The flavor of meat which is preferred by some people is related to the percentage of fat, and according to the study, camel meat contains fat less than beef. Also, from a point of health, the nutritional value of camel meat is much better than other animals, due to fact that, camel meat contains a high amount of amino acids compared to the beef, sheep and poultry (Table 1 and 2).

THE BENEFITS HEALTH OF CAMEL MEAT

1. Studies and medical research have proved that camel meat is superior to other kinds of meat. The camel is distinguished from other animals by the fact that the percentage of its intramuscular fat declines as the animal gets older. This quality, only found in camels, makes their meat less fatty, so its consumption is healthy and recommended for weight loss. And this quality also reduces the risk of cardiovascular disease and atherosclerosis since it lowers the percentage of cholesterol in the blood.
2. Camel meat has other medical qualities, too, like protecting against cancerous tumors, as claimed by some researchers, because it contains

unsaturated fatty acids like linoleic acid which interact with other unsaturated fatty acids taken from vegetable oils to protect against cancer.

3. Camel meat can also be used as a cure for exhaustion and fatigue because it contains energy needed by body cells. Such energy comprises sugar not fat, since, a camel's fat is concentrated in its hump whereas other animals store it in their muscles.
4. In addition, camel meat contains glycogen, a carbohydrate which is easily absorbed and metabolized in the body, and is converted to glucose which activates nerve as well as other cells.
5. Another quality which makes it good for the elderly is its richness in glycogen which is converted into glucose and is needed by the nervous system to provide cell energy and thus support the work of nerve cells. It can also provide the elderly with the energy and protein needed to compensate for tissue damage and reproduce hormones and enzymes needed for cell function. This is especially so when catabolism has surpassed anabolism which puts the elderly in need of easily metabolized and digested food likes camel meat.
6. Camel meat prevents obesity and heart diseases. A Tunisian study which compares various meats such as, beef, lamb, camel and chicken has revealed that camel meat is the best by far for human consumption, especially for those people who are afraid to gain weight and who would like to be protected by heart disease. The study pointed out that camel meat has a low level of fat with lots of fibers and that it is highly recommended by doctors for patients who suffer from high cholesterol because it is low in fat. The study said that doctors have found that there is a strong link between heart disease and obesity among people who have diet of beef, buffalo, lamb and goat meat. It added that the flavor of meat usually is a result of the amount of fat, which is why camel meat has a distinct flavor and a high nutritional value also due to the amount of amino acids found in the camel fat compared to beef.
7. Studies have shown that camel meat can be used as a cure for cold and sciatica, stroke, cancer, and infections, especially among older people because this meat can safeguard muscle health. This is due to its low percentage of saturated fatty acids and cholesterol compared to other kinds of meat. In fact the food value of camel meat is higher than poultry meat and equals that of the ostrich.
8. This meat is also known for its high percentage of iron, one of the basic ingredients of blood hemoglobin which helps to reduce the risk of anemia as proved by published research from SQU's Department of Animal and Veterinary Sciences. Those people who suffer from anemia are advised to take camel meat.

9. Our ancestors used camel meat for curing seasonal fever, sciatica and shoulder pain, as well as for removing freckles by placing hot meat slices on the freckled area. Camel meat soup was used to cure corneal opacity and to strengthen eyesight, while its fat was used to ease hemorrhoid pain. Furthermore, its hump fat was used to remove tape worm and its dried lung prescribed as a cure for asthma, especially if taken with honey. This was due to the fact that the camel lung is rich in vitamin C which reduces fever and enhances immunity, which in turn eases asthma infections. (Oman Daily Observer, Wednesday, September, 16, 2009)

Table 1: A comparison between the components of camel and beef meat

Parameter %	Camel meat	Beef meat
Moisture	78.7	71.02
Protein	21.83	20.64
Fat	1.15	7.8
Ash	0.89	1.15

Table 2: Chemical composition of camel meat

Composition	%
pH	5.8
Fatty acids	0.23
Peroxide No.	0.76
Cholesterol mg/100g	61
Pigments mg/100g	33.78
Oxy-meglobin	49.87
Met-meglobin	16.35
Calcium mg/100g	0.62
Phosphorus mg/100g	0.56
Magnesium mg/100g	23.6
Potassium mg/100g	293
Sodium mg/100g	70
Zinc mg/100g	3.9
Iron mg/100g	7.1
Copper mg/100g	2.1
Vitamin B 1 mg/100g	0.12
Vitamin B 2 mg/100g	0.18
Vitamin B 6 mg/100g	0.25
Vitamin E mg/100g	0.70