ABSTRACT

Animal products obtained from so-called niche species are gaining more and more popularity in the global food market. As far as poultry species are concerned, this cathegory covers farmed ratites, including the emu (Dromaius novaehollandiae). It is the world's second largest bird, and its farming history began relatively recently. Emu is considered a multipurpose poultry bird, although it is farmed for meat and fat in most cases.

Original research reports on the quality of emu meat, offal and fat are scarce, therefore the idea to study the nutritional value and quality of the raw materials obtained from emu (meat, offal and fat) seems justified. In addition, due to the fact that the birds are managed in several-year-long farming cycles, it was also important to check whether the age and sex determined the quality of the raw materials obtained from them. The working hypothesis was verified by determining the physicochemical properties of meat and the basic chemical composition, the content of macro- and microelements, cholesterol and fatty acid profile of emu meat, fat and offal.

Fifteen-year-old (8 ♀ and 6 ♂), three-year-old (6 ♂) and one-year-old (6 ♂) emus were used in the experiment. In total, raw materials from 26 birds were analyzed. The share of basic chemical components and physicochemical properties in the examined tissues were determined by conventional methods. The levels of the targeted minerals were determined using the inductively coupled plasma optical emission spectrometry (ICP OES). The fatty acid profile and the level of cholesterol were determined by gas chromatography – mass spectrometry (GC MS).

The results indicate that the meat of 15-year-old emus of both sexes is a valuable source of nutrients. What is worth emphasizing, there is a high protein content with a small amount of intramuscular fat and cholesterol, as well as a high iron content and a high proportion of arachidonic acid. A significant relationship was found between the basic chemical composition, physicochemical properties, mineral content and fatty acid profile vs. sex and type of muscle. Offal products, with liver in particular, were characterized by exceptional nutritional and dietary values. It has been proven that the stomach, liver and heart of the emu of both sexes represent a valuable animal raw material. In the case of emu fat, its quality has been proven to be related to age, sex and the location of the fatty tissue in the body. In the fat of 15-year-old emus, a higher content of heavy metals was found, therefore the raw material obtained from young 1- and 3-year-old birds seems to be the most recommended for use in the food and cosmetics industry. On the other hand, slight

differences depending on the location of adipose tissue indicate that both the abdominal fat and subcutaneous fat from the dorsal area are valuable raw materials and there is no need to separate them in the technological process.

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