Analysis of the amino acid content of bone marrow of livestock and poultry

Introduction

China is a big country for meat production and consumption, 20% to 30% in weight of livestock and poultry are their bones. Livestock and poultry's bones are rich in nutrients, for example protein, fat, collagen, and chondroitin (acid mucopolysaccharide) etc, as well as a variety of minerals. The content of these nutrients are several times that of fresh meat. Protein content is high, while fat content is lower, a typical high-nutrition and low-calorie food.

Bone marrow of livestock and poultry is a kind of traditional food and medicine with high-nutrition. It is considered to be with the functions of strengthening muscles and bones, prolonging life, and nourishing. This may be due to its active ingredients such as high-quality protein, minerals and fat.

Bone is usually used for cooking soups. The content of flavored amino acids plays a vital role in the taste of bone soup. Nutrients such as high-quality protein, functional peptides, flavored peptides and free amino acids are released during cooking of soups with bone inside, which make the bone broth delicious and easy to digest and absorb. The content of sweet amino acids is high. The sweet amino acids give the bone soup sweet and refreshing characteristics, reduce the bitterness, effectively enhance the taste of food, and provide an explanation for sheep bones and beef bones often made into bone soup.

The content of aromatic amino acids in bone marrow protein of cattle and sheep is relatively high while the content of bone protein in horse and sheep is relatively high. Aromatic amino acids not only affect the flavor of food, but also interact with branched chain amino acids. It constitutes the ratio of branch to aromatic and has clinical effects. Branched-chain amino acids can promote muscle's growth, release of insulin and growth hormone, improve exercise endurance, and prolong lifespan. In the treatment of liver diseases, preparations rich in branched-chain combinations and low aromatic amino acids have clinical significance.

The content of medicinal amino acids in bone marrow and bone protein is higher than the total amount of other kinds of amino acids. Among them, aspartic acid can enhance liver function and protect myocardium; methionine participates in the composition of hemoglobin, tissue and serum, and promotes spleen, pancreas and lymph Function; Leucine can promote gastric juice secretion. Bone marrow and bone protein have a high content of medicinal amino acids, and their nutritional and medicinal development value needs in-depth research.

For children with immature bodies, arginine and histidine are essential amino acids. Regular consumption of bone marrow and bone protein can supplement the metabolism and the amino acids needed for the growth and development of the body, which has a certain guiding and promoting effect on the research and development of children's health food containing bone marrow and bone.

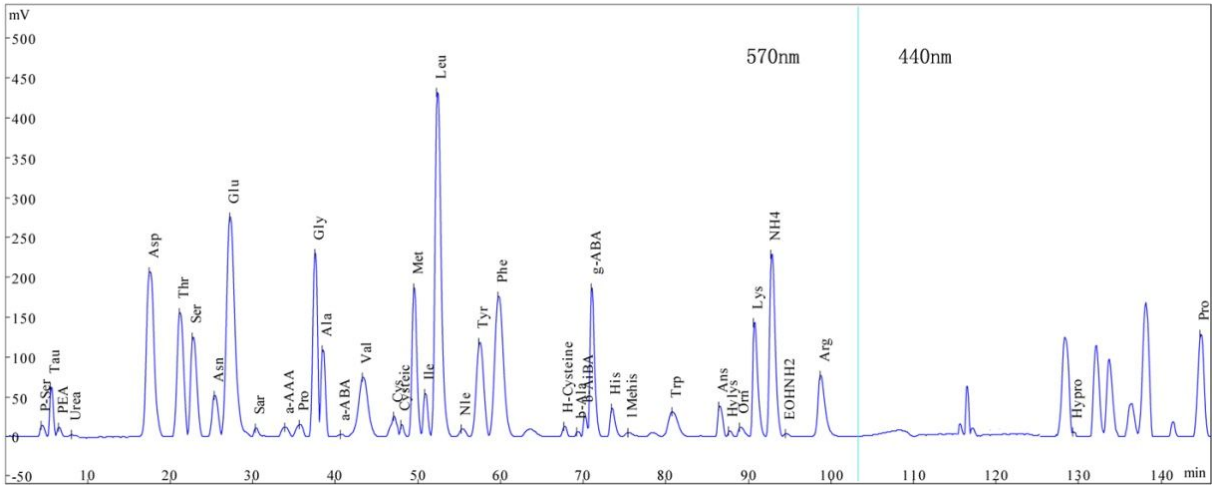

Figure 1: The sample was diluted in sample dilution buffer and subjected to protein precipitation by adding precipitation solution. After the sample was filtered and centrifuged, the free amino acids were separated using a lithium cation exchange column and then derivatized with ninhydrin. The detection was performed at 440 nm and 570 nm. The concentrations of the individual amino acids were determined using a known concentration of a standard amino acid mixture.

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