COMPARISON OF THE ANTIOXIDANT ACTIVITY OF THE PEPTIDES OF MYOFIBRILLAR PROTEINS PORK, CHICKEN AND FISH

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Introduction. Oxidation is one of the main causes for diseases and pathogenesis in humans. To inhibit and delaying these undesirable reactions, the cell presents a group of compounds that act as antioxidants, however there are other molecules found in the food which can be used for this purpose (Stadtman, 2006). Such is the case of the peptides derived from food, which have been observed to have biological activity. The most studied of these are peptides derived from the milk, seafoods and other foods; however the derivatives of meat and poultry are few reports.

The objective of the present work is to compare the antioxidant activity of peptides of myofibrillar proteins of three species: pork, chicken and fish.

Methods. The samples were acquired at the nearby market to the workplace; there are no reports of age, and the sex of the animal. We used the *Longissimus dorsi* muscles of pork, chicken *Pectoralis*, and muscles ventral of the fish in this case Tilapia. Samples were taken and proximal chemical analysis was made according to the AOAC (2002). Myofibrillar Proteins were extracted from each muscle and determined the protein content. It is fractionated in terms of its molecular weight (45 kDa) and by ultrafiltration. It was noted the electrophoretic profile of proteins and peptides. It was determined the antioxidant activity (Re and col, 1999) and the chelating of iron ion (Dinis and col., 1994) of the myofibrillar proteins and peptides (<45 kDa). All the evaluations were made by triplicate.

Results. The proximal analysis was similar to those found in the bibliography. The quantification of myofibrillar proteins of each species was 21, 20, 23 % respectively for pork, chicken and fish. This extract of myofibrillar proteins was used for the analysis of the electrophoretic profile which showed higher protein, lower and intermediate filaments, such as myosin, actin, tropomyosin, troponin, among others.

Fig 1. Electrophoretic profile of chain of polipeptides studied A. Molecular Weight Marker; B. Pork C. Chicken D. Fish

The figure 1 can be seen the largest presence of molecules less than 45 kDa, also we can appreciate the difference in distribution between species.
The samples of peptides had higher antioxidant activity than the myofibrillar proteins, which had the following order fish>pork> chicken. On the other hand, the antioxidant activity was shown to be zero with peptides of pork, however those of the other species had the following order fish >chicken.

Conclusions. The bioactive peptides derived from the pork and chicken have shown to have antioxidant activity, which may be promising candidates to be used as nutraceuticals or functional ingredients in food systems.

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