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Evaluation of radical scavenging of peptides after *in vitro* digests of chicken protein

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The production of peptides through hydrolytic reactions seems to be the most promising technique to form proteinaceous antioxidants since peptides have substantially higher antioxidant activity than intact proteins. While hydrolyzed proteins have good antioxidant activity, it is still not well-understood how the composition of peptides influences their ability to inhibit lipid oxidation. The objective of this study was to evaluate the radical scavenging peptides from *in vitro* digests of chicken protein. For that, Chicken protein (CP) isolate was subjected to a two-stage *in vitro* digestion (1 h pepsin followed by 2-h pancreatin at 37°C). The antioxidant potential of the CP digests was compared by assessing their capacity to scavenge 2, 20-azinobis (3-ethylbenzothiszoline-6-sulphonic acid) (ABTS+) and DPPH, (hydroxyl •OH) radicals. The pepsin digest, which demonstrated the strongest activity against both radicals, was subjected to Sephadex G-25 gel filtration. Of the three fractions collected, fractions II (734 Da) and III (730 Da) showed the highest ABTS+ scavenging activity and were 30-32% superior to mixed chicken protein digest ($P<0.05$). Fraction III was most effective in neutralizing OH and was 89% more efficient ($P<0.05$) than mixed chicken digest. LC–MS/MS identified Ile-Glu-Cys, His,Val (III); Tyr, Val, Lys, Gln (II) and Arg, Glu,Ser,Ile,Gly, Asp (I) to be the prominent peptides/ amino acid in these fractions. Understanding the relationship between peptide composition and antioxidant activity could lead to the development of new class of extremely effective, multifunctional, generally recognized as safe antioxidants that could be used in many food applications.

Biography

Gema Nieto has completed his PhD in 2016 at the University of Murcia and Postdoctoral studies in several centers as University of Life Science (Denmark), University of Kentucky (USA) and University of Tras'os Montes (Portugal). She is a young Researcher who has published numerous high quality papers in different scientific journals of Food Technology and Human Nutrition and has been invited as speaker in several national and international conferences. At the moment, she is an Associate Professor in the University of Murcia and member of the research group in Human Nutrition.

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