

INTRODUCTION

Antibiotics use in animal production raised concern associated with emergence of resistance in meat consumers [1]. So, “antibiotic-free” and organic products market is always growing. Both antibiotic-free and organic animals are not treated with any kind of antibiotic, and organics cannot be fed also with synthetic substances or treated with synthetic drugs. A deepening research of biomarkers to differentiate antibiotic-free, organic, and conventional meat is increasingly necessary [2]. Proteomic is a critical platform in nutrigenomics and can be used to identify, quantify, and characterize new dietary biomarkers and bioactive peptides [3].

AIM of the study

Organically and antibiotic-free chicken meat proteome comparison using two-dimensional electrophoresis (2-DE) and high-resolution mass spectrometry (UHPLC-QTOF MS).



Agilent UHPLC-QTOFMS 6545



Trypsin digestion

- A Pyruvate kinase
- B Beta-enolase
- C Creatine kinase M-type
- D Triosephosphate isomerase
- E Phosphoglycerate kinase
- F Fructose-bisphosphate aldolase
- G Glyceraldehyde-3-phosphate dehydrogenase
- H Adenylate kinase

EXPERIMENTAL

- 2 Representative samples from 10 chicken breasts for each type.
- Total protein from crude extracts determination with Bradford assay.
- 2D electrophoresis
- PDQuest quantitative analysis of spots
- Spot extraction and trypsin digestion
- UHPLC-ESI-QTOFMS untargeted analysis
- MASCOT protein database search

RESULTS

UHPLC-QTOFMS qualitative analysis revealed same glycolysis enzymes for both samples. Quantitative analysis need to be in- depth studied to underline possible differences in protein concentration.