

## Enzyme Producing Psychrophilic *Pseudomonas* spp. Isolated from Poultry Meats

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**Abstract :** *Pseudomonas* spp. (specifically, *P. fluorescens* and *P. fragi*) are considered the principal spoilage microorganisms of refrigerated poultry meats. The higher the level psychrophilic spoilage *Pseudomonas* spp. on carcasses at the end of processing lead to decrease the shelf life of the refrigerated product. The aim of the study was the identification of psychrophilic *Pseudomonas* spp. having proteolytic and lipolytic activities from poultry meats by 16S rRNA and *rpoB* gene sequencing, investigation of protease and lipase related genes and determination of proteolytic activity of *Pseudomonas* spp. In the of isolation procedure, collected chicken meat samples from local markets and slaughterhouses were homogenized and the lysates were incubated on Standard method agar and Skim Milk agar for selection of proteolytic bacteria and tributyrin agar for selection of lipolytic bacteria at +4 °C for 7 days. After detection of proteolytic and lipolytic colonies, the isolates were firstly analyzed by biochemical tests such as Gram staining, catalase and oxidase tests. DNA gene sequencing analysis and comparison with GenBank revealed that 126 strong enzyme *Pseudomonas* spp. were identified as predominantly *P. fluorescens* (n=55), *P. fragi* (n=42), *Pseudomonas* spp. (n=24), *P. cedrina* (n=2), *P. poae* (n=1), *P. koreensis* (n=1), and *P. gessardi* (n=1). Additionally, protease related *aprX* gene was screened in the strains and it was detected in 69/126 strains, whereas, lipase related *lipA* gene was found in 9 *Pseudomonas* strains. Protease activity was determined using commercially available protease assay kit and 5 strains showed high protease activity. The results showed that psychrophilic *Pseudomonas* strains were present in chicken meat samples and they can produce important levels of proteases and lipases for food spoilage to decrease food quality and safety.

**Keywords :** *Pseudomonas*, chicken meat, protease, lipase

**Conference Title :** ICAFAS 2015 : International Conference on Agricultural, Food and Animal Sciences

**Conference Location :** Zurich, Switzerland

**Conference Dates :** July 29-30, 2015