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CALPASTATIN GENE AS A NOVEL BIOMARKER FOR FILLET QUALITY IN FISHES

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ABSTRACT

The aim of study is development of molecular markers for screening the fishes for their better organoleptic texture. The gene responsible for governing the muscle texture in different species of fishes and other vertebrates, is Calpastatin in presence of calpins which act as the negative regulator of Calpastatin. These genes have been identified as playing potential role in muscle degradation in warm blooded animals. This implicates that calpains as impotent proteases controlling fish muscle protein turn over during fish growth and post mortem studies on the impotence of CAST gene in fishes are still limited. Calpastatin gene exist in two isoforms CAST-L and CAST-S were positively associated with muscle growth and firmness in rainbow trout. Starvation of fishes have shown marked increase in transcription of calpain sub units and Calpastatin, these results have shown that season of harvest and pre-slaughter period are likely to affect the expression of calpain-Calpastatin system and hence flesh texture and storage characteristics .The calpin- Calpastatin system in fish has been relatively little studied as compared with mammals. The calpin- Calpastatin shows highly sequence similarities with other class of vertebrates. The Calpains pathway may be involved in mobilising hepatic proteins during starvation. The current study will supports the importance of CAST (Calpastatin) gene in controlling fish protein turnover, and it is a good candidate as a biomarker for fish protein acceleration.

Keywords: Calpastatin, Rainbow Trout, CAST, Calpain – Calpastatin, Starvation

INTRODUCTION

Calpastatin (CAST) is a specific, endogenous inhibitor of the calcium-dependent neutral proteases, calpains. In mammals, calpains are known to play an important role in myofibrillar protein degradation that leads to muscle protein