

3rd International Conference on

Aquaculture & Fisheries

September 29-October 01, 2016 London, UK

Tumor necrosis factor receptor-associated factor 6 (TRAF6) from mud crab participates in anti-lipopolysaccharide factors (ALFs) gene expression

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Tumor necrosis factor receptor-associated factor 6 (TRAF6) is a cytoplasm key signal adapter protein that mediates signals activated by tumor necrosis factor receptor (TNFR) superfamily and the Interleukin-1 receptor/Toll-like receptor (IL-1/TLR) superfamily. The full-length 2492 bp *Scylla paramamosain* TRAF6 (Sp-TRAF6) contains a 1800 bp of open reading frame (ORF) encoding 598 amino acids, including an N-terminal RING-type zinc finger, two TRAF-type zinc fingers and a conserved C-terminal meprin and TRAF homology (MATH) domain. Multiple alignment analysis shows that the putative amino acid sequence of Sp-TRAF6 has highest identity with Pt-TRAF6 (KP341006) from *Portunus trituberculatus* at 88%, while the similarity of other crustacea sequences was 54-55%. RT-PCR results indicated that the Sp-TRAF6 transcripts were predominantly expressed in the hepatopancreas and stomach, whereas it was barely detected in the heart and hemocytes in our study. Further, Sp-TRAF6 transcripts were significantly up-regulated after immune challenge with *Vibrio parahaemolyticus* or LPS. Our previous study had characterized two novel anti-lipopolysaccharide factor isoforms from *S. Paramamosain* (SpALF5 and SpALF6). Both of them contain a conserved LPS-binding domain with two conservative cysteine residues, which is critical for their antimicrobial function. The *in vitro* binding and antimicrobial activity assays indicated that the recombinant SpALF5 and SpALF6 protein generated from prokaryotic expression system showed a varying degree of binding activity towards bacteria and fungus, and exhibited a broad spectrum of antimicrobial activities against Gram-positive, Gram-negative bacterium and fungi. Therefore, 6 ALF isoforms from mud crab had been reported up to now. To investigate Sp-TRAF6 activating SpALFs gene expression, RNA interference assay was carried out to examine the mRNA level of six SpALFs after silencing Sp-TRAF6 gene. The results shown that silencing Sp-TRAF6 gene could inhibit SpALF1, SpALF2, SpALF5 and SpALF6 expression in hemocytes, while SpALF1, SpALF3, SpALF4, SpALF5 and SpALF6 in hepatopancreas. Taken together, the acute-phase response to immune challenges and the inhibition of SpALFs gene expression indicate that Sp-TRAF6 plays an important role in host defense against pathogen invasion via regulation of ALF gene expression in *S. paramamosain*.

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The effect of preservatives on the keeping quality of spiced dried tuna sticks

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This study was conducted at the College of Fisheries Fish Processing Laboratory, Cagayan State University, Aparri, Cagayan from August to October 2003. It aimed to determine the effect of preservatives (citric and sorbic acids) on the shelf-life of spiced-dried fish sticks wrapped with waxed paper. It was limited to the use of skipjack tuna (*Katsuwonus pelamis*). Sensory and physical evaluation on color, taste, and moisture content changes of the product were done. Microbiological examination (mold count) of the product was also undertaken. Results of the study revealed that products treated with .02% sorbic acid had the longest shelf-life at ambient temperature which was 35 days. The product showed lower moisture absorption and lower mold count as the storage days progressed. Molds that grew on the product were identified to belong to the genera *Mocor aspergillus* and *Rhizopus*.

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