

and was the unique band pattern for both control and processed samples. Other sardine species yielded almost similar band pattern which was not able to differentiate easily. Hence *S. gibbosa* was identified from other species of sardines, which is one of the major species landed in Tuticorin coast, having a good market demand and export value. So there is a chance of mixing *S. gibbosa* meat with other low value sardine varieties. Hence PCR-RFLP can be recommended as an effective technique and can be used for routine species identification even from the processed fish products.

SF PO 17

Impact of different processing methods on retention of oxytetracycline residues in treated tilapia

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Antibiotics used in aquaculture results in deposition of residues in muscle and other tissues of aquaculture species if withdrawal time is not given after administration of drug. Oxytetracycline (OTC) is a primary antibiotic used in the aquaculture industry for the treatment against bacterial pathogen or as prophylactic measure. The antibiotic is usually administered in a form of medicated feed. Antibiotic residues are used to be measured on uncooked tissue. Data on the effect of cooking procedures on antibiotic residues in fish are limited. In the present study the effect of different processing methods like boiling, microwave cooking, frying and drying on retention of OTC residues in treated Tilapia was investigated. OTC residues are considered relatively

unstable compounds. Temperature during cooking has the largest impact on the loss of OTC residues, the more cooking time; the greater will be the loss of residues. The fish was treated with 3 different concentrations of OTC for ten days and harvested after 12h of last feeding. OTC residues retained after different processing methods was determined by LC-MS/MS.

SF PO 18

Optimization of phosphate treatment process in shrimp for acceptable residual level

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Seafood industries widely use phosphate dip treatment along with salt to improve the water retention properties of frozen products. Phosphates are GRAS chemical additives with a recommended maximum level of 2,200 mg/Kg in fish and fishery products. Though many combinations are in practise and many researches established different effective combinations, the residue levels were found to be falling out of the limits of regulations. This study optimizes the phosphate dip treatment in *Penaeus indicus* using Response Surface Methodology to get a safe residue level in the final product. Box-Behnken design with four factors, two levels - phosphate concentration (X1- 1 to 5%), salt concentration (X2- 0 to 3%), shrimp to dipping solution volume ratio (X3- 1:1 to 1:3), and treatment time (X4- 30 to 480 minutes) – used to design the experiment. Total phosphorous, weight gain, moisture content, texture and colour properties were investigated as response factors. The suggested models were verified to get a

maximum weight gain (15%) and safe level of phosphate residue within 7 hrs of treatment. It is concluded that the phosphate residue, within recommended level, is achievable through different combination of initial phosphate concentration, salt concentration, dipping solution volume and treatment time.

SF PO 19

Antibacterial activity of chitosan and zinc oxide nano-particle incorporated chitosan in different organic solvents

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Chitosan is usually dissolved in mild organic acids for various applications. Most of the previous experiments were carried out using acetic acid as a solvent for chitosan solution preparation. But, limited studies are available regarding antimicrobial properties of chitosan in different organic acids. The present study was carried out to understand the effect of different organic acids viz., propionic, lactic, citric, malic, oxalic, acetic, tartaric and benzoic acid on the antimicrobial properties of chitosan. Recently, enhanced antimicrobial activity of chitosan by incorporation of zinc oxide nanoparticles is gaining interest. Hence, in the present study, in addition to chitosan, antimicrobial property of zinc oxide nanoparticle incorporated chitosan (ZnO-NP-CH) in various acids was also comprehended. The biological activity was measured based on well diffusion assay against various food borne and multi drug resistant pathogens such as *E. coli*,

Salmonella, *V. cholera*, *L. monocytogenes*, *S. aureus*, *B. cereus*, *B. subtilis*, methicillin resistant *Staphylococcus aureus* (MRSA) and *Pseudomonas aeruginosa*. The results indicated varying degrees of antimicrobial activity for chitosan and ZnO-NP-CH in different acids. ZnO-NP-CH exhibited better antimicrobial activity than chitosan alone i.e., around 10 -15 mm wider zone of inhibition. Most of the bacteria resistant to chitosan became susceptible after incorporation of ZnO-NP. Among eight organic acids studied, propionic and acetic acid were found more suitable for chitosan with better antimicrobial activity. The order for the antimicrobial activity was as follows: Propionic>Acetic>Malic>Citric>Oxalic>Lactic>Tartaric>Benzoic acid.

SF PO 20

Coagulase positive *Staphylococci* in dried fish samples from Veraval

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The present study was carried out to monitor the incidence of coagulase positive *Staphylococci* (CPS) in dried fish samples (n=30) of Gujarat, India and assessed their molecular heterogeneity based on 16S rDNA sequence analysis. A total of 78 isolates of *Staphylococci* were recovered from 14 dried fish samples such as *Parapenaeus stylifera*, *Otolithes cuvieri*, *Coilia dussumieri*, *Harpodon nehereus*, *Saurida tumbil*, *Lepturacanthus savala*, *Megalaspis cordyla*, *Arius dussumieri*, *Gerres subfasciatus*, *Aluterus monoceros*, *Stolephorus indicuse* and *Cynoglossus*