cross and parallel streaking methods against ten human and fish pathogens, viz., *Klebsiella pneumoniae*, Enterohaemorrhagic *Escherichia coli, Escherichia coli, Staphylococcus aureus* ATCC 12598, *Salmonella* Typhi, *Vibrio cholerae*, *Bacillus pumilus,* β-haemolytic *Streptococcus* sp., *Aeromonas caviae* and *Edwardsiella tarda.*The antibacterial activities of the crude ethyl acetate extract of whole cell of *P. aeruginosa* and the spent medium were also tested against the pathogens by well and disc diffusion assays. The ethyl acetate extract of *P. aeruginosa* cells was subjected to column chromatography packed with silica gel (60-120 mm mesh size) using petroleum ether and ethyl acetate in different concentrations as mobile phase. The compounds of the bioactive fractions were semi-purified and partially characterised using thin layer chromatography and mass spectroscopy. The secondary metabolites were identified to be pyrols, quinoline and phenazine compounds. The results suggested that the bioactive fractions of whole *P. aeruginosa* cells have potential antibacterial activity, which can be used as an alternative to conventional antibiotics to control fish and human pathogens.

AW 07

Chilled storage stability of spice marinated and high pressure processed Indian white prawns (*Fenneropenaeus indicus*)

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Chilled storage stability of marinated and high pressure treated peeled and undeveined fresh prawns were evaluated. The prawns were marinated with condiments *viz*. chilli powder, salt and turmeric and then vacuum packed in EVOH pouches and subjected to high pressure treatment of 200, 250 and 300 MPa for 5 min. Marinated unpressurized prawn samples were kept as control. The products were subsequently stored at 2±1°C for evaluating the shelf life and analysed periodically for biochemical, microbiological and organoleptic parameters. High pressure treatment significantly altered the quality indices such as pH, TVB-N, FFA, TBA, TPC and overall acceptability of the samples. The control and 200 MPa treated sample were rejected on 20th and 25th day of storage respectively, whereas 250 MPa and 300 MPa treated samples achieved a shelf life of 35 days during chilled storage. Among the samples, the samples treated at 250 MPa were found to be organoleptically superior and also with respect to its biochemical and microbiological quality parameters.

AW 08

Optimization of extraction of dietary fibre from *Ulva lactuca* and its application in fish sausage

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This study was conducted to optimize extraction conditions of dietary fibre from *Ulva lactuca* and to evaluate its functional properties. Response surface methodology (RSM) was adopted following Box-Behnken design to determine the optimal conditions of

three independent variables namely concentration of the enzyme (% w/v, X1), time of enzyme hydrolysis (minutes, X2) and temperature of enzyme hydrolysis (ºC, X3) for five response variables namely yield, total dietary fibre (TDF), water holding capacity (WHC), oil holding capacity (OHC) and swelling capacity (SWC). The models obtained by RSM produced a satisfactory fit to the data with respect to dietary fibre extraction (for yield: R 20.98, p<0.0004; TDF: R2 0.95, p<0.007; WHC: R2 0.97, p<0.0019; OHC: R2 0.93, p<0.02 and SWC: R 20.91, p<0.03). The results revealed that the optimum extraction conditions were 0.95%, 60ºC and 63.82 min. for enzyme concentration, hydrolysis temperature and hydrolysis time, respectively. Under this optimal condition, the yield, TDF, WHC, OHC and SWC were 22%; 91.36%; 11.14 g/g; 1.24 g/g and 12.47 ml/g, respectively. Structural pattern and surface morphology were evaluated using Fourier-transformed infrared spectroscopy (FT-IR) analysis and scanning electron microscopy (SEM) analysis. The SEM image of dietary fibre showed irregular, uneven and intact surface morphology. The results showed that RSM can optimize the extraction of dietary fiber from *U. lactuca*. Dietary fibre fortified fish sausage were prepared with 1-5% level of dietary fibre from seaweed. Sausage fortified with 1% level of dietary fibre gives better consumer acceptability based on textual and sensory evaluation. The SEM image of sausages developed with dietary fibre showed that there is a variation in the network of dietary fibre and protein matrix in control and fibre incorporated sample. It indicates the stable structural interaction between dietary fibre and fish protein. The results of the study demonstrate that dietary fibre extracted from *U. lactuca* under optimized condition has good functional properties and can be incorporated at 1% level in pangasius fish sausage.

AW 09

A single enzyme PCR-RFLP protocol targeting 16S rRNA/tRNA^{val} region to authenticate four commercially important shrimp species in India

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Food authenticity is an issue of major concern for food authorities, as mislabeling represents one of the major commercial frauds. In this study, a novel PCR-RFLP protocol was developed as a tool to authenticate four shrimp products of commercial importance belonging to the family, Penaeidae, viz. *Litopenaeus vannamei*, *Penaeus monodon*, *Penaeus semisulcatus* and *Fenneropenaeus indicus*. PCR amplification was performed targeting 16S rRNA/tRNAval region having an amplicon size of 530 bp using the specific primers for shrimps, 16S-Cru4/16S-Cru3. Subsequent restriction analysis with a single restriction enzyme, Tsp5091, yielded distinct RFLP pattern for each species of shrimps having fragment sizes below 150 bp. The unique RFLP patterns were also obtained in processed shrimp products without any degradation or alteration in the major fragments. The method was also validated with commercial shrimp products. Thus, the developed protocol can be performed within 8 hours using a single enzyme to authenticate four shrimp products of commercial significance.