concentration of thyme oil but enzymatic activity was still observed at 1% thyme oil level.

SF PO 12

Changes in the physical appearance of farmed *Litopenaeus vannamei* during iced storage: Correlation with biochemical and microbiological parameters

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Litopenaeus vannamei is the most widely farmed shrimp species in India that is processed for export. Post harvest, *L. vannamei* shrimp are transported from shrimp farms to processing plants in iced condition; both intrastate and interstate. Judging the quality based on visual inspection offers a simple solution for quality assessment. Farmed *L vannamei* shrimp were harvested live, immediately iced and stored under iced condition. The physical appearance (gills, hepatopancreas), microbiological (APC, H_2S producing bacteria, pseudomonas count) and biochemical (TVBN, TMA, TBARS) changes during iced storage were observed for 20 days. Fresh shrimp had translucent white gills, light orange coloured hepatopancreas, APC of 55,400 cfu/g and TVBN of 16.8mg%. The first noticeable change during iced storage was in the appearance of hepatopancreas of the shrimp; which changed to bright orange colour by the end of 2nd day of iced storage but the microbiological (APC 1,27,000 cfu/g) and biochemical parameters (TVBN 26.6mg%) were acceptable. However, by the end of 6 days of iced storage the gills of the shrimp started blackening at the posterior end and the hepatopancreas turned to dark orange colour with black margins with relatively higher APC (7,40,000 cfu/g) and TVBN (36.6 mg%) values. The appearance of shrimp further deteriorated during iced storage and by the end of 19th day, the gills turned completely black, hepatopancreas appeared dark brown. The results indicate that *L. vannamei* shrimp with dark orange hepatopancreas with black margins and blackening at the posterior end of the gills is the limit of freshness and hence unacceptable for processing.

SF PO 13

Commercial essential oils as antimicrobial agents against histamine forming bacteria isolated from *Thunnus albacores*

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Isolation and identification of the histamine decarboxylating bacteria was done by using Modified Niven's Media. Histamine decarboxylating bacteria isolated from the gut region was in the range of $73\pm8.17x10^6$ cfu. Gill ($47\pm13.4x10^6$ cfu) and dorsal tissue had a significantly lower amount of histamine formers ($17\pm7.98x10^6$ cfu). The critical biochemical characteristics of the isolated bacterial strains were studied and identified to be Lactobacillus, Bacillus, Micrococcus and Klebsiella. Antimicrobial susceptibility test of the isolated histamine forming bacteria against clove and cardamom essential oils were done using agar well diffusion method. The test indicated greater