in view of environmental pollution. Hence, even though seafood process waste is identified as a certified resource for many biological molecules, the processors are disposing it off at a meagre revenue. Conversion of fish waste to high value end products is a wiser option for the industry as they can potentially generate additional revenue as well as reduce the cost of disposal of these process discards. Though, several protocols for these products have been developed, the application of the same in various fields are limited due to various technological and logistic reasons. Moreover as primary productivity still remain as a focus area of our country to support growing population, seafood process waste can be considered as an ideal organic source of nitrogen and minerals for primary as well as secondary production. Even though, a number of related technologies are documented in literature, no dedicated attempt has been made in the country for addressing the complete value chain process covering the point of waste generation to the point of application. Moreover, assuring the energy and water efficiency is critical in ensuring the sustenance of the process in long run. The present paper addresses the vital issues and technological constraints, and possible mitigational measures are suggested.

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Effect of vacuum packaging and electron beam irradiation on the shelf life of *Litopenaeus vannamei* during chilled storage

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In the present study the effect of electron beam irradiation (0, 2.5, 5.0, 7.5 and 10 kGy) on the quality characteristics of vacuum packaged headless vannamei stored at chilled condition (2°C) was assessed by biochemical, microbial and sensory evaluation up to 28 days. The total volatile base nitrogen, peroxide value and thiobarbituric acid reactive substances showed an increasing trend during storage.Non protein nitrogen content increased significantly ($p<0.05$) in control (547.4 mg%- 641.2 mg%) and 2.5 kGy treated sample (548.80 mg%-630 mg%). Texture analysis indicated that sample treated with 5.0, 7.5 and 10 kGy dose had lower hardness and chewiness than 2.5 kGy treated and control. *L** value showed a decreased trend in all the samples during storage (51.87-13.89). Moreover, *b** and *a** value showed a gradual increase during storage. It was observed that aerobic plate count was lower in irradiated sample than control. Similar trend was also observed for psychrophilic and pseudomonas count. There is significant ($p<0.05$) reduction in lactobacillus count in the irradiated sample with respect to different doses during storage than control. Based on the microbial and sensory analysis control (untreated), 2.5 kGy irradiated sample had a shelf life up to 12th day, 15th day, respectively. However, 5kGy, 7.5 kGy and 10 kGy treated samples had a shelf life upto 23rd day.

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Effect of some natural cryoprotectants on the quality of Japanese threadfin breams (*Nemipterus japonicus*) surimi during frozen storage