



Fig. 1. Electron Beam Processing Section of IRAD, BARC

samples had around 1 log reduction than control. Other EBI treated samples viz., 5.0 kGy, 7.5 kGy and 10 kGy exhibited about 2 log lesser count compared to control. *B. thermosphacta* count was around 4 log for control, while it was 3 log for EBI treated ones. H_2S forming bacteria also indicated 1 log reduction when treated with doses viz., 2.5, 5.0 and 7.5 kGy compared to control; while treatment with 10 kGy resulted in 2 log reduction

compared to control lots. In untreated samples (control), *Lactobacillus* count was 2 log on First day of storage. In case of treated samples, it reached 2 log count on 8, 15, 15 and 23 days of storage in 2.5, 5.0, 7.5 and 10 kGy treated ones, respectively. In the present study, based on the psychrophilic count, control samples were rejected on 5th day (Fig. 2). However 2.5 and 5.0 kGy irradiated sample were rejected on 15th day, whereas 7.5 kGy and 10 kGy treated samples had enhanced shelf stability with respect to microbial spoilage and were rejected on 19th day of chill storage.

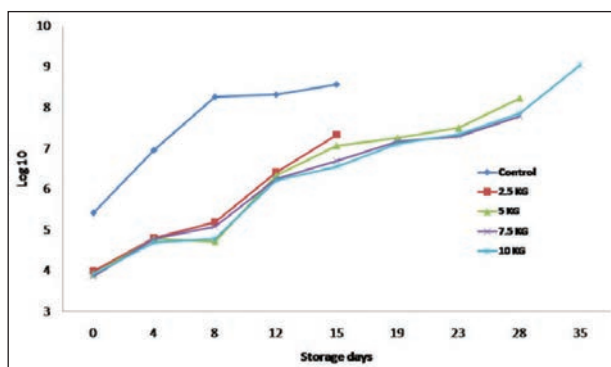


Fig. 2. Effect of EBI on SSOs

Back Pack Model of CIFT-Fish Bag

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Insulated fish bag was earlier developed by ICAR-CIFT as a convenient means for transportation of iced-fish for short distance. Recently, a back pack model of the CIFT-fish bag (Fig. 1) was designed to aid the retail fish vendors for easy carrying and transportation of chilled fish products (fish fillet, peeled shrimp etc.) and iced-fish (whole/dressed). The back pack model of fish bag is made up of three layers viz., an outer water proof covering, a middle insulation layer and an inner plastic lining. Outer covering is made up of

cotton coated rexin that minimizes the seepage of melt ice water. The middle layer is made up of thick expanded polyethylene foam which helps in slowing the melting of ice. The foam layer is basically a multi-layered unit composed of two foam sheets with a plastic coated iron mesh in the middle. The mesh provides rigidity to the fish bag and prevents sagging of the bag. The inner polythene layer prevents the contact of fish with the thermo foam thereby maintaining the quality of fish and makes the bag easy to wash. A plastic plate is provided at the base for bearing the



Fig 1. Back pack model of CIFT fish bag

weight of the contents placed in the bag.

Dimensions of the back pack model fish bag

The back pack model is basically a cylindrical bag with straps for carrying the bag on the back while walking or riding on a motorcycle. The back model of fish bag has a height of 20" (50.8 cm) and a diameter of 17" (43 cm). A rigid plastic plate (18 mm thickness) is provided at the base of the fish bag for bearing the weight of the material placed in the bag. The straps for the back pack bag are made of 2" thick foam. The empty weight of the back pack model fish bag is 1.18 Kg. The volume of the bag is 50 litres and can easily hold 10 kg of iced-fish and fishery products.

Field trails

The back pack model of fish bag developed by ICAR-CIFT was given to a fish retailer (Tirumala Aqua Food Products, Visakhapatnam) for field trials. Earlier the fish retailer was carrying fishery products in thermocol boxes on a motorcycle,

from processing site to different vending locations within Visakhapatnam city. The retailer was finding it difficult to carry the thermocol boxes on motor cycle and opening and closing of the thermocol box at each vending location was time consuming and leading to loss of cooling. The retailer used the back pack model daily for a period of one month for transporting chilled fishery products and the response indicated that



Fig 2. Field trial of back pack model of CIFT fish bag

the back pack model of fish bag is convenient, maintained fish in chilled condition for 6 hours with no flies, no off-odour and dust contamination (Fig. 2).

The trails indicate that the back pack model of CIFT-fish bag can replace the conventional fish carrying aids used in retail transport and help in maintaining superior quality products.