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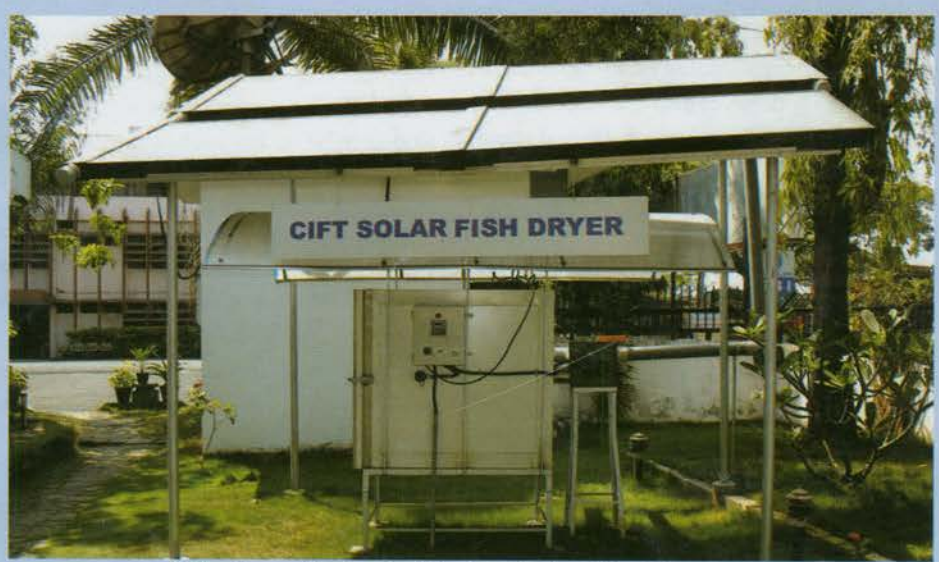
Editorial Committee

News from the Research Front

Solar Drying Using CIFT Solar Fish Dryer: An Eco-friendly and Hygienic Way of Fish Drying

Open sun drying, a cost effective preservation process has been used since time immemorial to dry various fishery as well as agricultural products as a means of preservation. To overcome the disadvantage of open sun drying, such as high labour costs, large area requirement, inability to control the drying process, possible degradation due to biochemical or microbiological reactions, insect infestation etc., a solar dryer with alternate electrical backup was designed and developed for drying fishes and other fish products hygienically in hot and humid climatic conditions. The dryer is made of food grade stainless steel and consists of a drying chamber and solar heat collecting panels. The experimental trials on solar drying were conducted with prawns using food grade stainless steel (SS 304) trays under controlled climatic conditions. The moisture content of prawn is reduced to 13-15% within a time span of 8 hours in place of 48



Solar dryer with electrical backup developed by CIFT, Cochin

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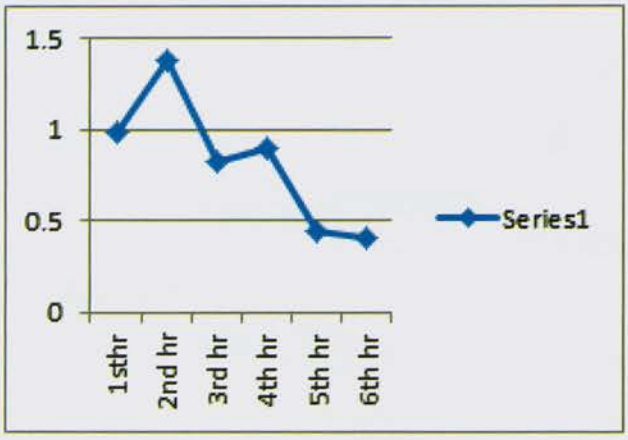
condition. The temperature range required for effective drying should be 45-55 °C inside the drying chamber. The flow rate of hot air at the entrance of drying chamber should not be less than 90m/min. Overall drying rate was in decreasing order when the drying process continues. In first two hours, the drying rate was increased but from 3rd to 5th and then 6th hour the rate of drying relatively decreased, as moisture content inside the fish was high at the beginning of the process and it was continuously decreased with time. Average drying rate was found to be about 0.82g/hr. Drying rate will be different for the different fishes and other agro products. It depends on product size and shape along with temperature and humidity inside the drying chamber as well as ambient conditions.



Drying rate (g/hr) Vs Time (hr)

The drying process is hygienic, cost effective, energy efficient and eco-friendly as it is performed inside the closed environment by harnessing solar energy through heat collecting panels. On the other hand salted prawn drying is more effective than unsalted drying when the colour and size is concerned. Solar dried salted prawns were most liked for its colour and texture whereas unsalted sample was most liked for its overall acceptability, while traditionally open sun dried sample was least liked for its colour and texture. An alternate energy backup of electricity is provided to maintain a constant temperature inside the drying chamber for operating the dryer during rainy season or during night. It will maintain the effectiveness of drying process and efficiency of the dryer. The overall drying process was found superior than open sun drying with respect to hygiene, product quality and reliability. The solar drying process is easy and simple to understand even for unskilled one. This technology can generate employment and increase the livelihood condition for the poor fishermen and their families as quality hygienic products fetch better price than beach dried products.

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BRD to Reduce the Landings of Juveniles of Hilsa, *Tenualosa ilisha* in Stationary Bag Nets

Hilsa shad, *Tenualosa ilisha*, is one of the costliest fish in India and is caught from the sea and inland waters, mainly from Hooghly river in West Bengal and Narmada river in South Gujarat. Nylon monofilament gill net is the most popular fishing gear used for capture of hilsa along the inland waters.

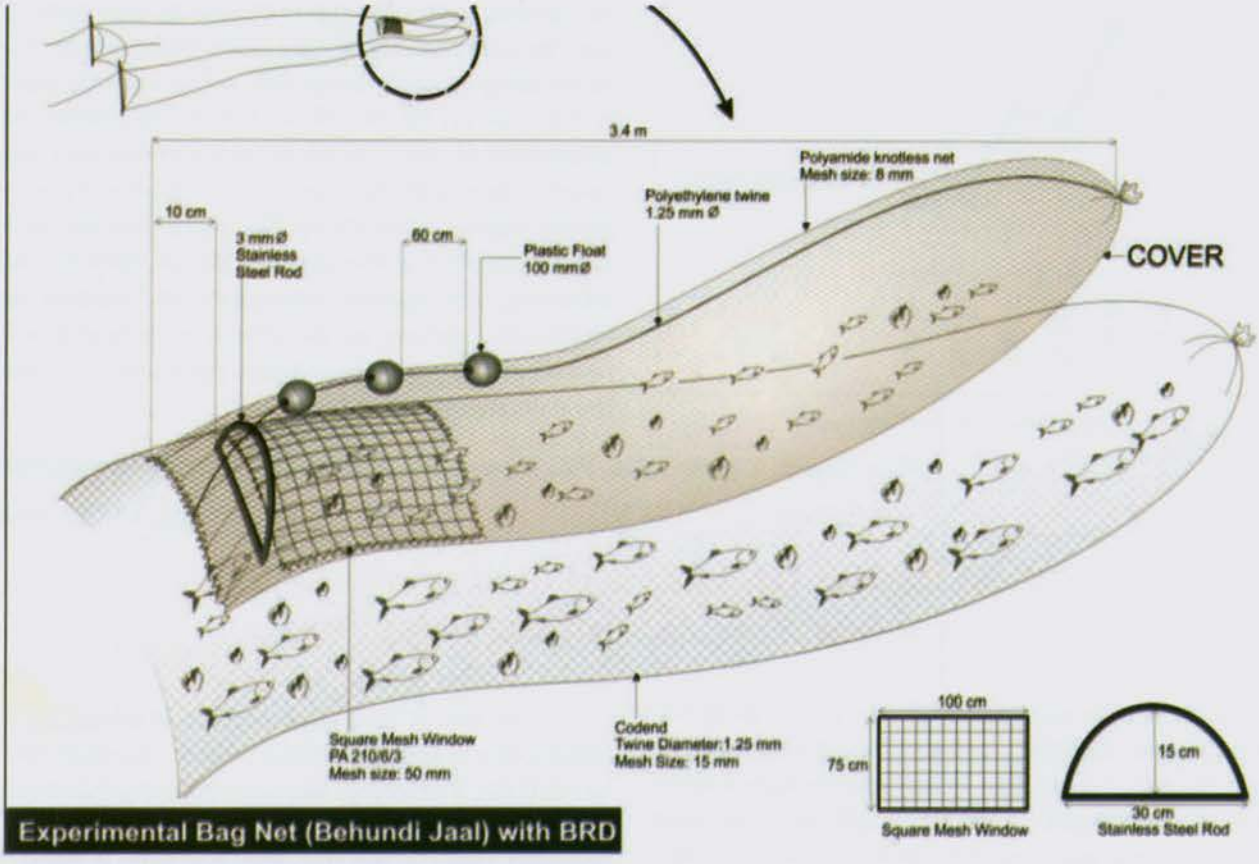
There is a decline in the hilsa catches from West Bengal and Gujarat. Unregulated fishing practices, use of non-selective fishing gears and resulted mass destruction of juveniles coupled with several other anthropogenic activities and reduction in rainfall are the reasons leading to the stock depletion. Thousands of surface set and bottom set bag nets are in operation in Hooghly river alone and reports say that about 170 species, mostly juveniles, fishes and prawns are caught in this filtering net. No management measures are strictly followed for conservation of hilsa in India.

In view of the declining catches of hilsa, CIFT in collaboration with Central Inland Fisheries Research Institute (CIFRI), Barrackpore has taken up a study to reduce the capture of juveniles of hilsa and other commercially important fishes in the stationary bag nets. A Bycatch Reduction Device (BRD) consisting of a square mesh window of size 1m x 0.75m made of 50mm mesh has been fixed near the codend of bag nets to permit the escapement of juveniles. Covers with very small mesh size are fixed over and on top of the square mesh windows to retain and quantify the juveniles escaping through the window.

These experimental bag nets are under operation at Tribeni, Godakhali and Frasergunj in Hooghly river, West Bengal, Bharbhut in Narmada river in Gujarat and at Odalerevu, Godavari river in Andhra Pradesh. In Hooghly the mean escapement of all the species from the BRD was found to be 0.65 kg and juveniles of hilsa formed 11.60%

Stationary bag nets in Hooghly (Inset - Hilsa juveniles caught in bag nets in Narmada)

Fabrication of BRD in a bag net



Experimental Bag Net (Behundi Jaal) with BRD

of the total catch excluded from the BRD. The length of the excluded hilsa ranged from 37 mm to 55 mm. The experiment is in the preliminary stage and seasonal and temporal variations in the catch and size classes need to be studied, for optimizing the mesh sizes and position of the BRD in the net for enhancing the juvenile's escapement, especially hilsa, from the bag nets.

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Microwave Blanching and Quick Chilling of Fish for Shelf-life Extension

With the changing life styles, the use of microwave ovens is becoming more popular in developing countries like India as the equipment has become affordable in the recent years. Domestic microwave ovens are conveniently