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Semi-automated de-clumper for harvesting farmed mussels

Mussel farming has developed as one of the major mariculture activities in India. In 2005-06 about 7500 tonnes of farmed mussels were produced and marketed in the country. The farming technology is simple and all the farm related activities are at present done manually without any automation. Harvesting and declumping (separating mussels from the rope) farmed mussels is by lifting the mussel ropes and by plucking the mussels from the rope or by stamping if the byssal attachment is very strong.

To separate the mussels easily from the rope

the concept of a semi-automated declumping machine was developed and accordingly one unit (Prototype I) was fabricated in 2004. The machine had two separate units, a metal drum and a metallic circular fixed shield with a central opening with a diameter of 10mm fixed on a stand and a ramp for placing the harvested rope. The method of operation is simple and had four steps as given below. Place the harvested rope on the ramp, pass the upper part of the rope through the metallic shield, wind the free end of rope on the metallic drum, rotate the drum with the handle.

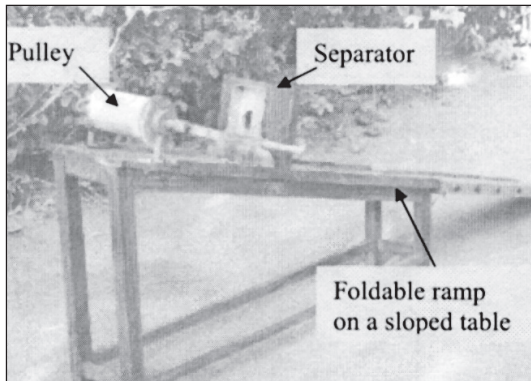


Fig. 1 Mussel de-clumper Prototype - II

During the rotating and coiling process the mussels are detached at the point where the rope passes through the shield since the extended part of the shield prevents the mussels from passing through. One meter mussel rope could be de-clumped in two minutes. The chief advantages were that physical exertion during harvesting could be avoided and that it was more hygienic and efficient. However, the disadvantage was the heaviness and difficulty in transporting to different sites.

To solve this problem Prototype I was modified and made friendly by fixing the drum at



Fig. 2 A mussel farmer using the mussel de-clumper

the end of the ramp (Fig.1). This machine with an estimated production cost of Rs.4500 can be used to detach the mussel from the rope very easily (Fig.2). This was field tested in the mussel farms of Korapuzha and Padanna in North Kerala. The declumper could detach 7 to 10kg of mussels from the meter mussel rope in two minutes. This works on the same principle as that of Prototype I but is much lighter and easier to transport.

This easy to handle semi-automated de-clumping machine (Prototype II) was launched among the mussel farmers (Fig.3) during the inaugural ceremony of the Green Mussel Farmers Society at Padanna in December 2005. This marks the beginning of mechanization in harvesting of mussels in India. Relief from physical exertion during harvesting especially for women and improvement in hygiene in the harvesting process are the main advantages. Prototype II is detachable, light weight and can be easily trans-



Fig. 3 Mussel de-clumper displayed at the Green Mussel Farmers Society (GMFS) meeting in Padanne, Kasargod

ported. Besides, by attaching a 1 HP electric motor at the pulley end the de-clumper can be made fully automatic. Provisions for jet washing of mussels can also be provided at the ramp end so as to clean the mussels as

they are de-clumped.

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