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SURVIVAL OF HATCHERY PRODUCED GREEN MUSSEL SEED IN DIFFERENT SALINITIES

Salinity tolerance of the seed of the green mussel *Perna viridis* (Linnaeus), produced in the Kovalam Field Centre of Central Marine Fisheries Research Institute, was tested in different salinity gradients for understanding the capacity of the hatchery produced seed to tolerate the changes in the salinity in the culture site, on transplantation. The seed were to be transplanted to Muttukadu Farm of C.M.F.R.I., where the salinity

gradient ranged from freshwater conditions during monsoon months to about 50‰ during summer months. The range in salinity tested varied between 5‰ and freshwater. For comparison purposes, seed of similar size were brought from the natural bed at Ennore and were also tested in the same salinities simultaneously. Seed from hatchery and from natural bed, were grouped into two size groups namely below 10 mm and 10-19 mm.

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Percentage of survival of seed of *P. viridis*, from hatchery and from natural bed in different salinities are presented in Fig. 1. All the mussel seed survived in the control for the entire period of 10 days. In fresh water all specimens in both the size groups died by the fourth day. 80% of them died even on the second day. In 5 and 10‰, smaller size group survived only for 3 days, but larger ones till 4 days. In all the above three salinities, the seed were observed to be totally inactive from the time of introduction till death. In salinity 15‰, mortality to the extent of 30-40% was noticed among the smaller ones on the second and third days. In larger individuals, 30% of the hatchery seed were dead by third day. In 20‰, mortality was observed only among the smaller seed on the 5th day, to the

extent of 20% among the hatchery produced and 10% among the natural bed seed. There was 100% survival among the larger seed in this salinity. There was totally no mortality in the salinities of 25, 30 and 40‰. In 45‰, mortality was noticed on the fourth day to the extent of 40% and 30% among the hatchery produced seed alone. At 50‰, mortality occurred in all the size groups viz., 50 and 60% among the hatchery seed and 30 and 10% among the natural bed seed.

These observations indicate that the green mussel seed can survive in salinities from 15 to 50‰. Since there was no mortality in the salinity range of 25 to 20‰, this can be considered as ideal range for the mussel to live in. In 15, 20, 45 and 50‰ the seed survived in spite of some mortality. These can be considered as tolerance range, where the mussel gradually acclimatizes by itself. Salinities of 10‰ and below, are lethal to the mussel, since there was total mortality.

The seed from the natural bed are observed to be more tolerant than the hatchery produced. From the above observations, it can be inferred that the green mussel seed can be transplanted directly, if the salinity at the culture site is between 25 and 40‰. Acclimatization has to be done, if they are to be transplanted in salinities of 15, 20, 45 and 50‰. Another point of significance was that, mortality, if there was any, took place almost within five days, which means that the seed get acclimatised by that period or succumb to the adverse conditions.

At Muttukadu Farm, the salinity drops to low levels during November-December. By January, the salinity invariably reaches 20‰ and gradually rises to 45‰ and above during June-July. Therefore seeding has to be done in January, when the conditions are almost favourable. The mussel can be allowed to grow till June, when conditions are ideal for their survival. Harvest can be done in June/July itself, so that adverse effects of high saline conditions in the subsequent months can be avoided. Same pattern of seeding can be adopted, wherever similar conditions exist.

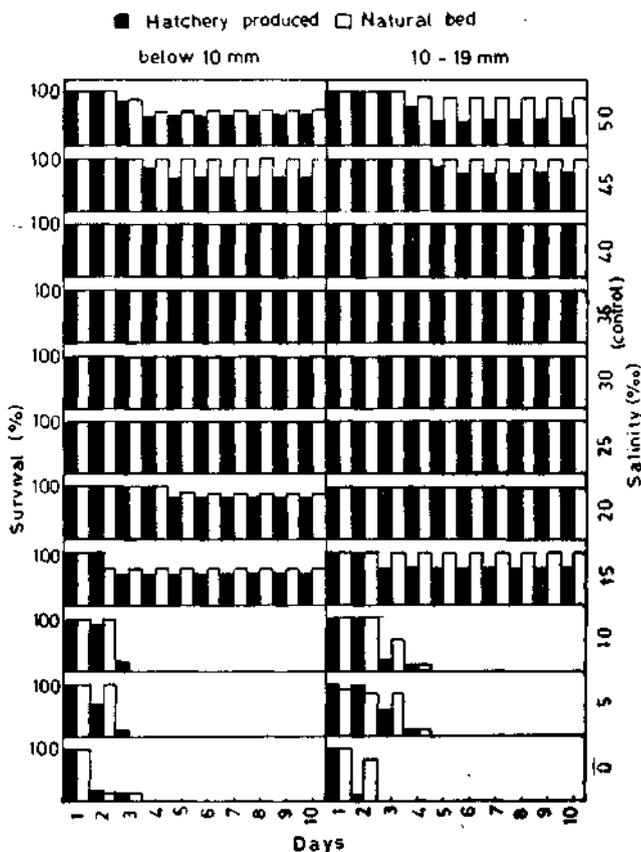


Fig. 1. Survival (in percentage) of the seed of *P. Viridis* in different salinities.

