M.S.50. AJITHAKUMAR, B.S.–Reproductive Physiology of Indian Species of the Genus Perna–1984–Dr. K. Alagar Swamy.

The reproductive physiology of the two species of Indian sea mussels, namely the brown mussel *Perna indica* and the green mussel *P. viridis*, has been investigated by the comprehensive approach to the problem. The major aspects of the study include ecophysiology of reproduction linking up the annual reproductive cycle of the animals with the ecological conditions of the natural mussel beds, biochemical and histochemical changes associated with reproduction, and the neurosecretory cycle in synchrony with the reproductive cycle.

Data on temperature, salinity, dissolved oxygen, turbidity, phytoplankton production and rainfall have been presented for both the study areas.

Perna indica was in reproductive phase during February to September and in the resting (vegetative) phase from October to January. Sex differentiation and gametogenesis commenced in February and active gametogenesis was noticed in March and April.

Spawning took place from September to November with a peak in October in the primary reproductive cycle and was observewd from January to March with a peak in March in the secondary cycle.

The secondary spawning of *P. viridis* is associated with higher temperatures but the spawning is incomplete and partial.

Rainfall, through its effect on lowering the temperature and salinity, appeared to influence the different processes of reproduction.

Reproduction also showed a high degree of correlation with availability of food.

Localised pollution of coastal waters due to coconut husk retting near Elathur had an effect on the reproductive potential of *P. viridis.*

Biochemical studies on *P. indica* and *P. viridis* revealed that, the composition varied with the stages of maturity and also seasonally.

The gonad of the mussels was observed to be of glycolipoprotein in nature.

The neurosecretory cells (NSC) of a single type (pyriform) have been observed in the cerebral and visceral ganglia of *P. indica* and *P. viridis.*

Experimental evidence has been obtained on the role of neurosecretion in spawning of *P. indica* and *P. viridis* through extirpation of the ganglia of the central nervous system.