

To cope with different stresses mangrove plants have several morphological and physiological adaptations. They are: 1) Aerial roots to facilitate exchange of gases, 2) Power of resistance against sodium toxicity, 3) Even in presence of excessive amount of sodium, the absorption of potassium is not inhibited, 4) They have various devices to either excrete extra salt through glands on leaves, or ultra-filter at root level itself, 5) Xylem tissue shows great negative pressure (tension) -30 to -60 bars which helps in the absorption of water, 6) Nitrogen fixing micro-organisms, present on lenticular barks and decaying leaves provide good medium for diazotrophs to fix nitrogen, 7) the regeneration is also facilitated due to viviparous seedlings, 8) The leaves of seedlings, which get submerged in sea water at high tide, show some hydrophobic chemicals, such as lipids, wax esters, and hydrocarbons.

3. Man-made stressed habitats - In our hectic efforts to improve the quality of living, we are using our resources at a very fast rate. Richards Fitter in 1970 gave the following equation to show the relationship between quality of living (q) use of resources (r) and human population (p).

$$q = r p^2$$

Thus we are using our resources at a very fast rate producing huge amount of toxic wastes. These wastes settle on soil or mix with our water sources, and air deteriorating their characters and their life support system. The crop of such soils and biota of water resources suffer badly. This has been shown by several scientific studies including those in River Khan, Chambal and soils in the vicinity of Nagda Industrial Complex near Ujjain (M.P).

People, these days, have become ecology-conscious and in their enthusiasm express that 'due to industries, the ecology of such and such a place is degraded'. Ecology is a science and cannot be degraded. All that they mean is that eco-system or environment is degraded. Therefore, such expressions should be avoided.

Zoology, Entomology & Fisheries

Genetics of Dosage Compensation: An old concept in new perspective by A. S. Mukherjee, Department of Zoology, Calcutta University, Calcutta 700 019.

In almost all higher living systems, Nature has been specially concerned in upholding the task of evolving a distinctive sex dimorphism, that is man and woman, concurrently promoting the establishment of the sex chromosomes. It has so happened that in most organisms (except birds and butterflies), the female has two X chromosomes and the male has only one X and one Y. Since the X is single in the male, it carries only one set of X-coded genes, while the female carries two such sets. Now, Nature had to face the problem of discrimination between sexes. And so by the process of selection and evolution, the problem was solved by allowing only similar end product. Consequently, equalization of the X-coded gene product was achieved. This equalization could be achieved by keeping one of the two X-chromosomes in the female active, or hyperactivating the only X in the male. The former is true for mammals to which group we human beings belong, and the latter holds true for many insects like fruitflies. I have demonstrated the latter. Researches have been undertaken on both systems by many groups in India and abroad. My group in Calcutta University has been engaged in solving the intricacies of the mechanism as to how the hyperactivation of the X in male fruitfly is realized. We are in a position to predict (by interplay of two opposite regulatory signals from the X and autosomes, which we have termed, Modulator and Activator), the *operational manifesto* of such gene activity of the X chromosome. The prediction can be extended to various abnormal sex types by extrapolating an equation based on the products of these signals.

The significance of these findings is crucial for the regulation and differentiation in higher systems. It is also evolutionarily highly significant in that Nature has taken care of the eco-genetical imbalance by bringing about the balance in the gene products among the two *Morphs* of the same species, namely man and woman. I have called it a 'prophylactic measure of ecological management at the genetic level'.