In this issue

Extending photosystem constituent's role to DNA repair/ protection in cyanobacteria

One of the quirks of plant science till recently has been its prolonged silence on the mechanisms of DNA repair. The primary reason was the lack of an ideal model organism for comprehensive genetic analysis until the sequencing of the genome of cyanobacteria *Synechocystis* PCC6803, the first to appear in the public domain (1996), was announced. Though cyanobacteria were subject to genetic analysis following the lessons learnt from *E. coli* genetics even earlier in providing insights beyond phenomenology, the second stumbling block was the polyploidy of the genome (10–12 copies) that resisted isolation of homozygous mutants necessary for the key step involved in such techniques. In this issue, Minda *et al.* (**page 58**) follow up an earlier observation of a UV-sensitivity switch between the light and dark phase using the strain *Synechocystis* PCC6803. Backed by genome sequence, and tackling the obstacle of obtaining homozygous knockout mutants of *recA* and *uvrA* homologues of *E. coli*, the authors demonstrate that the switch is not controlled by the canonical DNA repair systems in prokaryotes, but critically depends on the D1 protein's repair/protection function. Thus contrary to present belief that D1 is the target of UV and oxidative damage that underlie its enigmatic high turnover nature, they claim its DNA protective role as more significant that has escaped detection earlier because of the lack of genetic analysis. Implication is a hitherto unknown pathway for UV stress management in all oxygen evolving photosynthetic eukaryotes including higher plants since chloroplasts are known to be vestiges of ancestral cyanobacteria.

Molecular taxonomy of stranded marine mammals

Marine mammals, the most charismatic and lesser studied faunal group in the coastal waters around India, are major components in marine biodiversity and marine ecosystem dynamics. Documentation of the occurrence of marine mammals of conservation importance, especially cetaceans, would provide valuable information on the distribution and migratory nature of various species in seas around India. Sanil *et al.* (**page 117**) describe the identification of marine mammals stranded in a putrefied condition at Edayar, Thiruvananthapuram District, Kerala, using DNA sequences of mitochondrial cytochrome oxidase subunit I (COI) and of 16S rRNA. Sequence and phylogenetic similarity search was done with all entries in the DNA sequence database GenBank using BLAST. In the case of the first specimen, BLAST search of COI showed 100% sequence similarity with Bryde's whale (*Balaenoptera edeni* Anderson), whereas in the case of second specimen search of 16S rRNA showed 97% sequence similarity with finless porpoise (*Neophocaena phocaenoides* (Cuvier)). Phylogenetic position of both the samples for 16S rRNA gene sequences confirmed the identity of the species. The record of *B. edeni* is the second report of the species from the southwest coast of India. The authors propose that the common name of *B. edeni* inhabiting the seas around India could be considered as Eden's whale, rather than as Bryde's whale, pending taxonomic uncertainties of the species involved in the complex. The study also forwards the idea of using DNA barcode data for confirming the taxonomy of stranded marine mammals.

Mass bleaching of corals in the Andaman

Coral reefs constitute one of the most diverse and dynamic ecosystems with biological, ecological, social and economic significance. They provide livelihood to millions of people associated with fishing and dive tourism. India has four reef systems (Gulf of Kachchh, Lakshadweep, Gulf of Mannar and Andaman & Nicobar Islands) along its vast coastline extending over 8000 km. The reefs in A&N Islands are the most diverse and account for over 40% of the reefs in India. Globally, the conventional stresses like pollution, habitat destruction, diseases, unsustainable fishing, etc. are known to degrade the reefs. The massive earthquake and the consequent tsunami on 26 December 2004 resulted in significant physical damage of the coral reefs in the islands. However, given its scale and extent, the recent mass bleaching phenomenon induced by elevated sea surface temperature (SST) has created an ecological crisis in A&N Islands, as also reported globally.

Krishnan *et al.* (**page 111**) discuss the underlying ecological factors and climatic conditions that lead to mass bleaching of corals. The surveys conducted in different study sites across the Andaman showcase the extent of bleaching of corals, considered as the worst since 1998. A comparison of the progression of SST during the summer months of 2010 with earlier years of mass bleaching events (2002 and 2005) in this region clearly underlines the climatic factor which induces this ecological crisis. The study documents the impact of elevated SST on different types of corals and reef associates like giant clam, sea anemone and brittle star.