**Proposal for phytoplankton pigment study off Mumbai**

The seasonal upwelling caused by prevailing monsoonal levels and the zone of oxygen minimum that is developed along the Indian coast are two important factors that influence the marine biota especially fisheries. Arabian Sea is an area with increased primary productivity due to high nutrient coming from upwelling (Karl B.,1987; Nair R.R.,1989; Madhupratap et al.,1996). This increased primary production may also lead to increased fisheries production (Caddy, 1993). At some point, however, the ecosystem’s ability to process organic matter in a balanced manner is exceeded. If physical dynamics permit stratification, hypoxic conditions develop. The Indian Ocean contains one of the most pronounced Oxygen Minimum Zone (OMZ), which anomalously, is the most intense in the northwestern sector i.e. Arabian Sea (Naqvi, 2006). According to Schott (1935), the layer of minimum oxygen is most noticeable off Mumbai, where it is found generally at the depth of 50 m. Hypoxia have major impact on biotic community and created many dead zone in the world. Phytoplankton community was directly affected by hypoxic condition (Anderson and Taylor, 2001).

**Objectives:**

1. Phytoplankton community structure analysis through HPLC pigment analysis in different condition like hypoxic condition and upwelling condition.
2. The changes in phytoplankton biomass production in different condition and seasons and specified the contribution of each phytoplankton class contribution
3. To know the composition of phytoplankton species and find out the major species in variable condition and their adaptability
4. Try to assess the environmental stress through degraded phytoplankton pigment analysis

**Materials and Methods**

1. **Pigment Analysis:** Phytoplankton pigment analysis will be done in HPLC and data will be analysed to know the biomass contribution of different classes.
2. **Phytoplankton composition:** Phytoplankton species composition will be analysed with compound microscope following the standard taxonomic key.
3. **Physico-chemical parameters** will be analysed following standard protocols.

**Deliverable:**

In different environmental condition (Hypoxic condition and upwelling condition) how phytoplankton production and phytoplankton composition will be changing.