# Observations on Lab-lab constituents in brackishwater ponds at Cochin

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## ABSTRACT

A study has been conducted during April–October 1991, to findout the different constituents of Lab-Lab Present in four brackish water aqaculture ponds. The Lab-Lab present in the culture systems were mainly composed of blue green algae *Oscillatoria* sp. *Phormidium* sp, *Lyngbya* sp, *Spirulina* sp, and diatoms *Pleurosigma* sp, *Navicual* sp, *Amphora* sp, *Nitzschia* sp, *Coscinodiscus* sp, and micro fauna aopepod, amphipod, polychaete worms and lameli branch spat.

Lab–lab is the natural food in the culture system and it is composed of several microscopic organisms dominated by the blue green algae. These constituents of the biological plant and animal complex are suitable natural food for the culture of fin and shell fishes especially milk fish chanos chanos, mullets, prawns, etc. It also serves as a primary food resource in the earlier stages of life cycle of marine and brackish water organisms. The Lab-Lab has been utilised for the successful commercial culture of milkfish in Indonesia Philippines and Taiwan (Schuster, 1952).

In view of the importance of Lab-Lab in food chain of fishes and prawns, it is very much essential to study the constituents of Lab-lab in localities where culture operation is intensive. Thus the present study emphasised to find out the constituents of Lab-lab present in the fish culture ponds at Cochin.

## MATERIALS AND METHODS

To study the constituents of Lab-lab four aquaculture ponds, were selected at Cochin, Kerala, Station I Pokkali field at Cherai where seasonal culture of prawn and paddy cultivation are carried out during different seasons of the year,station coconut palm canal at Narakkal excavated between rows of coconut trees for irrigation and utilized as cuture system station IV the experimental perennial culture pond of Central Institute of Brackish water Aquaculture (CIBA) at Narakkal and station IV the supply canal of CIBA (Fig.–1). Fortninghtly collections

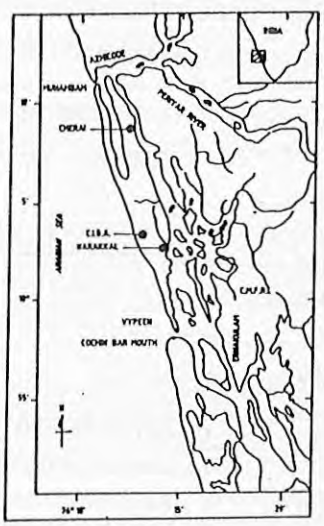


Fig. 1 : Map showing location of stations.

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were made from these stations during April October, 1991. The Lab-lab is scraped off from the bottom of the ponds during low tide with a Lab-lab sampler consisting of a basal plate of 15 x 15 cm of Galvanised Iron Sheet, a sample of 10 x 10 $cm^2$ was made up into known volume and preserved in 5% formalin for counting the algla complex under microscope.

The micro-fauna associated with Lab-lab were separated by seving and preserved in 5% formalin with rose bengal.

## RESULTS AND DISCUSSIONS

The Lab-lab present in these stations were mainly composed of blue green algae *Oscillatoria* sp, *Phormidium* sp, *Lyngbya* sp, *Spirulina* sp, diatoms *Pleurosigma* sp, *Navicula* sp, *Nitzschia* sp, *Coscinodiscus* sp, and micro fauna copepods, amphipods, polychaere worms and lamellibranch spats. The numerical abudance of Lab-lab constiuents incresed from April to May amounting to 18380, 18340, 12800, 11560/100$cm^2$ and it declined to 2668, 1970, 2795, 4550/100 $cm^2$ it and month of June in station I, II, III & IV respectively. The abudance of Lab-lab has shown an increasing trend in the post monsoon season and attained the maximum of 78580, 89970, 68705, 50475/100 $cm^2$ in these four stations. (Fig.-2). The sudden fall in the month of June is attributed to the high influx of fresh water during the South west monsoon. The same relationship in the distribution of algal complex and diatoms in Cochin backwater during premonsoon, monsoon and postmonsoon period were also reported among other by Gopinathan (1972), and Joseph and Pillai (1975). Among the various environmental factors, salinity is found to have significant influence on the existence of flora

**Table 1 :** Filamental standing Crop of dominart algae in different station during April-October 1991.

| | Stations | Estimated No. of filaments (mean value Oscillatoria sp.) | Mean length of filaments (mm) | Estimated length filaments/100 $cm^2$ (mm) |
|---|---|---|---|---|
| I. | Cherai pokkali fields | 1658 | 0.247 | 409 |
| II. | Narakkal coconut grove | 6366 | 0.264 | 1680 |
| III. | CIBA experimental pond | 4558 | 0.241 | 1098 |
| IV. | CIBA supply canal | 2175 | 0.180 | 391 |
| | | Phormidium sp. | | |
| I. | Cherai pokkali fields | 2125 | 0.241 | 512 |
| II. | Narakkal coconut grove | 2966 | 0.267 | 791 |
| III. | CIBA experimental pond | 3375 | 0.283 | 955 |
| IV. | CIBA supply canal | 2175 | 0.180 | 391 |
| | | Lyngbya sp. | | |
| I. | Cherai pokkali fields | 800 | 0.155 | 124 |
| II. | Narakkal coconut grove | 708 | 0.140 | 99 |
| III. | CIBA experimental pond | 650 | 0.152 | 98 |
| IV. | CIBA supply canal | 1541 | 0.185 | 285 |

and fauna in an estuarine system (Bardach *et al*, 1972 and Haridas *et al*, 1973). The length wise production of dominant blue green algae in the four stations are given in table–1. It is observed that the total length of Oscillatoria and Phormidium was relatively high at filamental standing crop of dominant algae in different stations during April-October 1991.

Sanders (1958), Tang and Chen (1967) and Parulekar *et al.* (1975) reported that the nutrient status and texture of the soil play an important role in the production of flora and fauna in the bottom of the ponds. A comparison showed the total standing crop of Lab–lab to high in Coconut Palm canal at Narakkal followed by Pokkali field at Cherai, Experimental pond of CIBA and its supply canal (Fig.–2). This may be due to the nutrient status of the pond bottom.

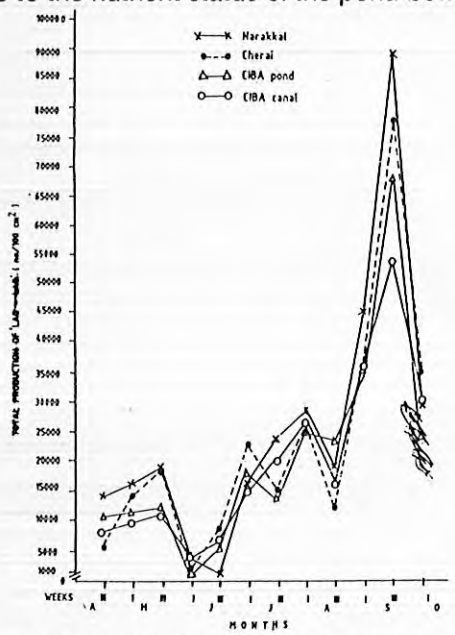


**Fig. 2 :** Variation in total number of 'Lab–lab' constituents at different stations during April–October 1991.

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## REFERENCES

Bardach J.E., Ryther J.H. and W.O. Mc. Laſeney. 1972. Milk fish culture in Agricultural, the farming and Husbandary of Freshwater and Marine Organisms, Interscience, New York, 313–349.

Desai, S.N. and M. Krishnan Kutty. 1969. A comparison of the marine and estuarine benthic fauna of the near shore regions of the Arabian Sea. Bull. Natl. Inst. Sci. India, 30 (18) : 677–686.

Gopinathan, C.P. 1972. Some seasonal abundance of phytoplankton in the Cochin backwaters. J. Mar. Biol. Ass. India, 14 (2) : 568–577.

Haridas, P., Madhupratap, M. and T.S.S. Rao. 1973. Salinity temperature, oxygen and zooplankton biomass of the backwaters from Cochin to Alleppey. Indian J. Mar. Sci. 2 (2) : 94–102.

Joseph, K.J. and V.K. Pillai. 1975. Seasonal and spatial distribution of phytoplankters in Cochin backwaters. Bull. Dept. Mar. Sci. Univ. Cochin 7 (1) : 171–180.

Parulekar, A.H., Rajamanickam, G.V. and S.N. Dwivedi. 1975. Benthic studies in Goa estuaries, II. Biomass and faunal composition in the Zuari estuary. Indian J. Mar. Sci. 4 : 202–205.

Sanders, H.L. 1958. Benthic studies in Buzzard Bay, I. Animal sediment relationalships. Limnol. Oceanogr. 3 : 245–258.

Schuster, W.H. 1952. Fish Culture in brackish water ponds of Java. Spc. Publ. Indo. Pacif. Fish. Coun. : 2.

Tang, Y.A. and S.H. Chen. 1967. A survey of algal pasture soils of Milkfish ponds in Taiwan. FAO Fish. Rep. 44 (3) : 198–209.