Chapter V

GENERAL DISCUSSION

The present endeavor was carried out in the historically important North Guwahati area where four fish ponds were selected for the study. A total of 151 algal species belonging to seven taxonomic phyla i.e. Chlorophyta, Euglenophyta, Pyrrophyta, Chrysophyta, Xanthophyta, Bacillariophyta and Chlorophyta were identified using standard monographs and published papers which were systematically arranged following John *et al. (*2003, 2005*)*.

Of all the algal taxa reported, the most dominant group was Chlorophyta with a percentage occurrence of 50% of total algal taxa under 29 genera belonging to 15 families followed by Euglenophyta (32%), Cyanophyta (9%), Bacillariophyta (6.62%), Xanthophyta (2%), Pyrrophyta (0.66%) and Chrysophyta (0.66%). Chlorophyta contributed 75 algal taxa of the entire floral pattern reported from the studied area out of which 52 taxa were the newly reported taxon from Assam. Similarly, 43 algal taxa from the group Euglenophyta were reported for the first time from Assam. Chlorophyta plays a major role in maintaining freshwater ecological balances in a water body (Palmer, 1980) and its dominance might be an indication of a healthy status of the pond (Shivalingarah*etal.*, 2009). Dominance of Chlorophyta throughout the year was reported by many researchers *viz.* Sakhare and Joshi (2002); Pawar and Pulle (2006); Jayabhaye*et al*. (2007) in different parts of India and Kakati (2011) and Bordoloi *et al*. (2016) in Assam.

One of the most important ecological parameters playing a major role in determination of water quality is the pH (Bordoloi, 2016). The pH value of all the study sites were reported to be slightly acidic (6.79) to moderately alkaline (7.8) during different times of the year. Water bodies

with pH value 6.46 or higher harboured more diverse algal communities (Das and Ramanujam, 2010) which was reflected in our study.

Of all the fish ponds explored during the study period, the highest algal species (53) were observed from the study site S1. The dominance of the group Euglenophyta followed by Chlorophyta in this site might be an indication of good health of the pond (Kakati, 2011). With the presence of maximum number of common species, the highest similarity index was observed between S1 and S3. Also, the presence of species like *Scenedesmus* and *Pediastrum* indicated the nutrient enrichment of the pond which is on the other hand in conformity with Zargar and Ghosh (2006). Presence of algae like *Chlamydomonas, Euglena, Phacus* and*Scenedesmus* supported the probable organic pollution status of both the ponds as calculated using Palmer's scale.

The trend of presence of lesser number of representatives of Cyanophycean members indicated somewhat healthy condition of a water body. Presence of *Aphanocapsa, Merismopedia*, *Chroococcus*and *Scytonema*are the only Cyanophycean members present in study site S2 supported the view ofHujare, 2008. The Palmer's pollution index score of this sampling site was reported to be least (9) of all the study sites. Genera like *Aphanocapsa*, *Nephrodiella, Catena*, *Chlorella, Bracteacoccus* and *Oocystis* were found to be present only in this particular site. Whereas, absence of pollution tolerant genera like *Chlamydomonas, Cyclotella, Euglena, Lepocinclis, Navicula, Nitzschia, Pandorina, Synedra*indicated no organic pollution of the site (Bordoloi and Baruah, 2014; Buragohain and Yasmin, 2014). This might be a scope for pristine environment of the pond which might indulge the fringe villagers to contemplate commercial potential providing livelihood opportunities with a view to conserve

algal diversity and facilitate algologists to incorporate data for fishery industry listing good algae.

The study site S4 was identified as the site with high organic pollution (Table 5). The total algal count of this pond was revealed to be 48 species, among which the highest dominating group was Chlorophyta followed by Euglenophyta. The presence of pollution tolerant genera like *Chlamydomonas, Cyclotella, Euglena, Navicula, Nitzschia, Phacus* and *Scenedesmus* was observed in this site.

The present endeavor is a complete taxonomical database of algal flora of North Guwahati region of Kamrup district, Assam.