SUMMARY
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Water is an integral constituent of life. It dominates the chemical composition of all organisms. There are many freshwater bodies in Aligarh. Present work represents the preliminary limnological study in some selected water bodies of Aligarh.

Water temperature varied in accordance with air temperature. Temperature ranged from 17 °C to 34 °C in Medical Pond, 18 °C to 35 °C in Pond 1 and 16.5 °C to 33 °C in Pond 11. Minimum temperature was recorded during January and February, 2004 and maximum in June and July, 2003 in all the three ponds.

Carbon dioxide was found to be absent during the whole period of investigations.

Dissolved oxygen varied from 2.5 to 9.8 mg/L in water samples collected from the ponds. Medical Pond showed a minimum of 3.2 mg/L in August and October, 2003 and maximum of 9.8 mg/L in March, 2004. Pond 1 showed a minimum of 2.8 mg/L in July, 2003 and maximum of 9.8 mg/L in February, 2004. Pond 11 showed a minimum of 2.5 mg/L in July, 2003 and maximum of 9.5 mg/L in January and February, 2004. Fluctuations in D.O. content have been found to be affected by many factors like solubility of oxygen in water, intensity of light and photosynthesis.

pH ranged from 7 to 9 during the whole period of investigations.
Minimum pH in Medical Pond was 7.2 during December, 2003 and maximum was 9 during March, 2004. Pond I showed the minimum pH of 7.4 in August and December, 2003 and maximum of 8.9 during June, 2003. Pond II showed a minimum pH of 7 during March, 2003, while maximum of 8.8 during February, 2004. The wide range of pH is the result of disturbances caused by washermen’s activity, wind action and cattle.

**Phytoplankton** mainly comprises algae. Polymodal seasonal occurrence of phytoplankton is seen in all the ponds. A number of physical, chemical and biological factors were found involved to bring cumulative effect. Total phytoplankton population showed a positive correlation with temperature and pH in all the ponds while it showed negative correlation with Dissolved Oxygen.

Myxophyceae (Blue-Green algae) formed the dominant group among phytoplankton groups in all the ponds. Maximum numerical strength of 73/ml was found in Medical Pond during June, 2003. In Pond I, 94/ml in August, 2003 and in Pond II, 62/ml in August, 2003, whereas minimum population was found in April, 2003 (41/ml) in Medical Pond. In Pond I, 38/ml in April, 2003 and in Pond II, 32/ml in February, 2004 respectively. The group was represented by the following genera *Anabena*, *Nostoc*, *Spirulina* and *Microsystis*. They indicate the eutrophic nature of the water body. It started increasing in early summer and reached its peak when the temperature was 33 °C and decreased towards monsoon. At the
end of monsoon, the number increased because of the rise in temperature. The period of myxophycean maxima was accompanied by low D.O. content.

Chlorophyceae (Green algae) formed the second most abundant group. In Medical Pond maximum strength of 50/ml and minimum of 32/ml was found in March, 2004 and June, 2003 respectively. In Pond I, maximum in April, 2003 (64/ml) and minimum in October and November, 2003 (43/ml). In Pond II, maximum in April, 2003 and March, 2004 (58/ml) and minimum in October, 2003 (22/ml). The group was represented by *Scenedesmus*, *Crucigenia*, *Spirogyra* and *Ulothrix*. They showed the Eutrophic nature of the water body. Chlorophyceaeen species react diversely at different temperatures and showed a positive correlation with pH.

Bacillariophyceae (Diatoms) formed the fifth and smallest group in the population density. It was represented by *Cyclotella*, *Diatoma* and *Navicula*. In Medical Pond, the maximum density was found in March, 2004 (12/ml) and minimum density was found in December, 2003 (3/ml). In Pond II, the maximum density was (16/ml) in July, 2003 and minimum (7/ml) in March, 2003. In Pond I maximum density was 22/ml in June, 2003 and minimum was 6/ml in December, 2003.

Euglenophyceae formed the third abundant group. It was represented by *Euglena* sp. and *Phacus* sp. In Medical Pond, the maximum density was
(29/ml) in July and August, 2003 and minimum was 16/ml in November, 2003. In Pond I, the maximum was 27/ml in March, 2003 and minimum was 7/ml in November, 2003. In Pond II, the maximum was 30/ml in January, 2004 and minimum was 20/ml in April, May and October, 2003. They are found in abundance in water bodies which are organically rich and can be used as indicator of organic pollution. Presence of high nutrients supports their growth.

Desmidiaceae (Desmids) was represented only by one genera i.e. *Closterium*. It formed the fourth dominant group. In Medical Pond, the maximum density was found in August and September, 2003 (20/ml) and minimum (7/ml) in March, 2004. In Pond I, maximum density was in October, 2003 (19/ml) and minimum (7/ml) in March, 2004. In Pond II, it was maximum (24/ml) in August, 2003 while minimum was 11/ml in March, 2004. They are found exclusively in freshwater. They are found in less quantity in water bodies which have more population of *Myxophyceae* and *Chlorophyceae*.

Zooplankton – The freshwater zooplankton fauna of these water bodies comprised of four major groups, the *Cladocera*, *Copepoda*, *Rotifera* and *Ostracoda*. The total zooplankton number fluctuated from 82-139/L in Medical Pond, 37-101/L in Pond I and 34-74/L in Pond II. They showed polymodal occurrence. Zooplankton population showed negative correlation with temperature in Medical Pond and positive correlation in
Pond I and Pond II. With pH it showed positive correlation in all the three ponds, while with D.O., it was positive in Medical Pond and negative in Pond I and II.

Cladoceran formed the most dominant group in the population density. The group was represented by *Daphnia galeata*, *Daphnia similis*, *Daphnia rosea*, *Daphnia pulex*, *Moina micrura* and *Bosmina* sp. In Medical Pond, the maximum was observed in January, 2004 (90/L) and minimum in August, 2003 (26/L). In Pond I, the maximum was 45/L in May, 2003 and minimum 12/L in December, 2003. whereas in Pond II, maximum was 32/L in April, June and July, 2003 and minimum 11/L in December, 2003. Cladocerans comprised the food of fry, fingerlings and adults of many economically important and cultivable fish species. If food supply is enough cladocerans usually level up high in number.

Copepoda formed the third most abundant group of zooplankton. It was represented by *Cyclops* and *Diaptomus* spp. In Medical Pond, maximum was 21/L in April and June, 2003 and minimum 8/L was in October, 2003. In Pond I, the maximum (16/L) was in June and July, 2003 and minimum (4/L) was recorded in February and found to be absent in November, 2003 and March, 2004. Whereas in Pond II, the maximum (16/L) was recorded in September, 2003 and minimum (1/L) in January, 2004. They are primary and secondary consumers in aquatic food chains and can make organic material available to higher trophic levels thus
saving the foraging energy to their predators. Seasonal fluctuations are mainly due to temperature variations. The occurrence of egg bearing females, nauplii and copepodite stages were found throughout the period of investigation showing the continuous breeding behaviour.

Rotifera formed the second most abundant group of zooplankton. It was represented by *Brachionus calyciflorus*, *B. bidentatus*, *B. urceolaris*, *B. quadridentatus*, *Asplanchna priodonta*, *Epiphanis senta*, *Keratella quadrata*, *Keratella tropica* and *Filinia longiseta*. In Medical Pond, maximum was (40/L) in July, 2003 and minimum was (20/L) during May, 2003. In Pond I, the maximum was (27/L) in July, 2003 and minimum (7/L) in September, 2003, while in Pond II, the maximum was (25/L) in April, 2003 and minimum (11/L) was in October, 2003. They are valuable bioindicators (Sladecek, 1988; Berzins and Pejler, 1989). Rotifers are also essential food source for IMC. Temperature was not found to be a limiting factor for rotifers.

Ostracoda was represented by only one genera i.e. *Cypris* sp. It was found least in surface waters, which might be due to its benthic nature. They are only a minor element in the diet of young and adult fish.

Eggs and Nauplii were found throughout the period of investigation showing that zooplankton are prolific and continuous breeders.