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A COMPARATIVE LIMNOLOGY ON TWO DECCAN WETLANDS

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INTRODUCTION

Large, medium and small water bodies called lakes/ reservoirs / impoundments constitute the major freshwater resources of Andhra Pradesh and these water bodies were formed by the construction of dams across small rivulets and streams for irrigation or as a source of drinking water of the region. Pocharam lake that is situated in Medak-Nizamabad Districts and Wyra lake in Khammam District of Andhra Pradesh in South India are presently the major sources of water in the regions.

Some of the notable contributions on limnology in the state include Zafar (1966), Venkateswarlu (1969), Munawar (1970), Venu (1981), Ratna Rao (1984), Jaya Devi (1985), Chandrasekhar (1966, 2006), Chandrasekhar and Nageswara Rao (2006), Patil and Panda (2003), Malathi *et al.* (2003) Anitha *et al.* (2005), Siddiqi and Khan (2002). In an aquatic ecosystem, water quality influences its biotic components and it controls diversity, biomass and spatial distribution of the latter in time and space. The physico-chemical parameters exert their influence both individually and collectively and their interaction produces abiotic environment which conditions the origin, development and finally succession of biotic communities. Further, biotic communities in turn, continuously goes on in a dynamic ecosystem.

The Present study was undertaken to evaluate a comparative account of physico-chemical and biological conditions of two deccan wetlands *viz*., Pocharam lake and Wyra lake in Andhra Pradesh which differed significantly in their limnological aspects and trophy (nutrient status) with emphasis on the structure and composition of zooplankton particularly Rotifera and Cladocera.

MATERIAL AND METHODS

The studies on Pocharam lake and had been carried out during three different seasons (November, 2003-winter, March, 2004-summer and July, 2004-monsoon) of 2003-04 and Wyra lake it was 2006-07 (November, 2006-winter, March-2007-summer and August, 2007-monsoon). In order to cover the whole topography of the water bodies seven surrounding villages located at the bank of Pocharam lake and nine at Wyra were selected and undertaken the surveys. Physical parameters and titrimetric parameters were analysed in the field laboratories itself and water samples were brought to Head Quarters by collecting in PVC bottles of one liter capacity and given to a private laboratory for the analysis of nutrients and light metals. Plankton samples were collected by diving the plankton net (No. 25) on the sub-littoral regions of the lake waters and the preserved in 4 % formaldehyde solution and the identification of Rotifer and cladoceran fauna was done with the aid of standard literature on these two groups.

Pocharam lake is situated at about 110 kms from Hyderabad city in its north-west direction / 17 kms from Medak town and Wyra lake is at about 250 kms from Hyderabad city in its northern side / 25 kms Khammam town.

Table 1. Comparative Case history and morphometry of two lakes.

Sl. No.	Details	Pocharam lake	Wyra lake
1	Construction year	1922	1929
2	Location	18° 18'N & 77° 57'E	17° 15'N & 80° 25'E
3	Catchment's area	16.835 sq. kms	19.166 sq. kms
4	Depth (depending on the season / fluctuation in rain fall)	5-6 feet	5-6 feet
5	Constructed on	Alair River	Godavari river
6	Usage	Irrigation, domestic and forestry exploitation	Irrigation and domestic

RESULTS AND DISCUSSION

Limnological investigations were restricted to the three major seasonal surveys *i.e.*, November (winter), March (summer) and July/August (monsoon) on both the lakes. The station-wise ranges and mean values (some of the mean values were rounded of to the nearest fractions) /overall values of different physico-chemical parameters of seven stations of Pocharam lake and nine of Wyra lake were given in a table during the three major seasons (winter, summer and monsoon) of the study periods 2003-04 and 2006-07 respectively.

The **pH** values during the study periods varied between 7.24-9.16 with mean value of 8.0 on Pocharam lake and 7.0-8.7 with mean value of 7.57 on Wyra lake indicating the general alkaline tendency of waters. The higher pH values may be attributed to the carbonates/ bicarbonates and higher photosynthetic activities. The lower (7.24) was noticed at Rajpet in winter and higher one (9.16) was during monsoon at Pochammaralu of Pocharam lake where as in Wyra lake the lower and higher values *i.e.*, 7.0 and 8.7 were found at Reddigudem in winter and summers. The **electric conductivity** was observed with a range of 230-810 micro siemens / cm and 360 – 810 with mean values 350 and 542 in Pocharam and Wyra lakes respectively. The **turbidity** values of Pocharam lake fluctuated between 15 – 300 NTU with mean value of 67, where as in Wyra lake it was 5 – 184 with a mean value of 53. The lower value (15) was observed at Rajpet in winter and higher one (300) was at Kottapalle of Pocharam lake. Similarly in Wyra lake, the lower turbidity value (5) was found at Brahmanapalle during winter and the higher (184) was at Singarayapalem in summer. Its higher values are known to affect the primary productivity by restricting the light penetration and photosynthesis. The **Dissolved Oxygen** (DO) profile revealed a variation between 2.6-8.2 with an average value of 5.2 in Pocharam lake and in Wyra lake, it was 1.3-6.0 with a mean of 4.6. The lower 2.6 mg/L of Pocharam lake was observed at Burugapalle in monsoon and the higher one 8.2 was seen at Polkampet during winter and monsoon seasons. Likewise, the lower value (1.3) of Wyra lake was noticed at Wyra spot during summer and the higher (6.0) was at different localities of the water body in monsoon. Here the higher values of Dissolved Oxygen may be due to comparatively clear zones and increased photosynthetic activity by phytoplankton. The total absence of **carbonates** was noticed in monsoon in Wyra lake. In the case of Pocharam lake the carbonates fluctuated between Nil to 90 with an average of 54 mg/L and in Wyra lake it was found fluctuated between Nil to 50 with a mean value of 41. The **bicarbonate** values of Pocharam lake were seen from 35-100 mg/L with an average of 88 where as in the case of Wyra lake it was found between 125-320 mg /L with a mean value of 215.2. The **chloride** content at different stations of Pocharam lake varied 15-43 mg/L with a mean value of 27 while at Wyra lake it was 27-110 with an average value of 65. The maximum value (43) of Pocharam lake was found during summer at Polkampet, the minimum value (15 was noticed at Pocharam lake in Pocharam (V) spot in winter. Similarly the minimum value

(270) in Wyra lake was noticed at in summer at its Wyra locality and the maximum value of 110 was observed in Winter at Reddigudem. The peak in chloride values may be related to evapotranspiration and high evaporation due to the prevailing high temperature. The chloride content further involves the presence of organic matter of animal origin. Lower chloride values in the water body were probably due to its distant location and natural elevation that gives protection from inflows of domestic wasters and cattle feeding. The values of **total hardness** varied between 85-280 mg/L with a mean value of 159 in Pocharam lake where as in Wyra lake it was between 85-280 mg /L with a mean value of 149. The peak value total hardness value (245 mg/L) of Wyra lake was noticed at Singarayapalem during monsoon while its minimal value (95) was at Narayanapuram in winter. The maximum quantity of total hardness value (245 mg/L) of Wyra lake was noticed at Singarayapalem during monsoon while its minimal value (85) was seen at Wadalparti in monsoon. The ranges of hardness values recorded were invariably lesser in the case of Wyra lake, indicating the presence of other ions and therefore all excess hardness can be termed as carbonate hardness where as it is reverse in the case of Pocharam lake and hence Wyra lake waters may be classified as moderately hard to hard and indicate no physico-chemical deterioration. The **calcium** hardness in the case of Pocharam lake varied between 15 – 59 mg/L (mean 30) where as in Wyra lake it was between 21 – 42 (29). Higher concentration of calcium was observed at Pocharam (V) of Pocharam lake in winter season while it was at Reddigudem of Wyra lake in monsoon.

In general, aquatic ecosystems receive excess of nutrients through untreated domestic sewage and agriculture run off. Phosphate acts as a limiting nutrient responsible for the process of eutrophication and leads to ultimate degradation of an aquatic ecosystem. During the course of study on Pocharam lake the **phosphate** ranged between 0.01 to 0.09 mg/L (mean 0.4) while in Wyra lake it was 0.03 to 0.28mg/L with a mean of 0.86. The minimal value of Pocharam lake was noticed at Pochammaralu and Burugapalle during winter and its maximum was at Polkampet in monsoon. In the case of Wyra lake the minimal and maximum values were obtained at Wyra spot and Siddikhnagar during monsoon and winter respectively. The higher phosphate content indicate the loading in of domestic sewage and agricultural run off from the surrounding colonies and agricultural fields respectively.

The quantity of **Nitrate** of Pocharam lake fluctuated from 1 (several localities during winter) to 15 mg/L (Burugapalle in summer) with a mean value of 5.23 where as its value at Wyra lake is ranged from 1.9 (Wyra spot in summer) – 10 mg /L with a mean value of 3.27, but the minimal and maximum values were obtained at Wyra spot and Siddikhnagar respectively during monsoon season. The overall **silicate** concentration of Pocharam lake were found around 10 only. The silicate values during winter in Wyra lake were comparatively low and summer values are more. High concentration of **sulphates** stimulates the action of sulphur reducing bacteria, which produce hydrogen sulphide, a gas highly toxic to fish life. Sulphates of Wyra lake water was observed from 16 – 97 mg /L with an average value of 39.1 wherein the minimum was noticed in summer at Lallapuram while the maximum was in winter at Siddikhnagar. The sulphate concentration in Pocharam lake waters fluctuated between 6 – 43 mg/L with a mean value of 16 where in the lower value was found at Burugapalle in summer and the higher one was in monsoon at the same spot. **Sodium** which can also be called as conservative metal, showed the variation in Pocharam lake waters from S Pocharam in winter - 46 mg/L (Rajpet in winter) with a mean value of 27. But in Wyra lake Sodium concentration fluctuated between 30 (Wyra –winter) and 92 (Lallapuram-summer) with a mean value of 61.3. The quantity of **potassium** in Pocharam lake waters found between 1 mg/L (several places in winter and summer) – 5 mg/L (Pochammaralu – winter) with a mean value of 1.95, where as in Wyra lake this concentration was between 2.0 (several places in winter and summer) to 5.0 (Lallapuram –summer), with an average value of 3.1.

Table 2. Showing the over all ranges and mean values of physico-chemical parameters of two lakes.

Sl. No	Parameter	Pocharam lake		Wyra lake	
		Range	Mean	Range	Mean
1.	pH	7.24 – 9.16	8.0	7.0 – 8.7	7.57
2	EC (micro siemens/cm)	230-810	350	360-810	542
3	Turbidity (NTU)	15 – 300	67	5 -184	52.8
4.	DO (mg/L)	2.6 -8.2	5.2	1.3 – 6.0	4.55
5	Carbonates (")	0 -90	54	0 -50	41
6	Bicarbonates (")	35 -180	88	125 – 320	215
7	Chloride (")	15 -43	26.5	27 - 110	65
8	Total Hardness (")	90 – 280	159	95 – 245	149
9	Calcium (")	15 – 59	30	21 – 42	29
10	Phosphates (")	0.01 – 0.09	0.36	0.03 -0.28	0.86
11	Nitrates (")	1 – 15	5.23	1.9 – 10.0	3.7
12	Silicates (")	5 – 21	9.5	3.0 – 16.0	10.5
13	Sulphates (")	6 - 43	16	16 – 97	39.1
14	Sodium (")	8 – 46	27	30 – 92	61.3
15	Potassium (")	1 – 5	1.95	2.0 -5.0	3.1

Table 3. Showing the occurrence of Zooplankton communities (Rotifera and Cladocera).

Sl. No	Species	Pocharam lake	Wyra Lake
	ROTIFERA		
1	*Brachionus angularis* Gosse	+	-
2	*B.caudatus* Barrios & Daday	+	-
3	*B.diversicornis* Daday	+	+
4	*B. forficula* Muller	+	+
5	*B. calyciflorus f. anureformis* Brehm	+	-
6	*B. calyciflorus f. borgerti* Apstein	+	-
7	*B. calyciflorus* var. *dorcas* Gosse	+	-
8	*B. calyciflorus* var *hymani* Dhanapathi	-	+
9	*B. falcatus* Zacharias	+	+
10	*B. plicatilis* Muller	+	-
11	*B. quadridentatus* Hermann	+	+
12	*B. patulus* (Muller)	-	+
13	*Platiyas quadricornis* Ehrenberg	+	+
14	*Keratella tropica* Apstein	+	+
15	*Mytilina ventralis* (Ehrenberg)	+	+
16	*Macrochaetus serica* (Thorpe)	-	+
17	*Lepadella ovalis* Muller	-	+

Table 3. contd.

Sl. No	Species	Pocharam lake	Wyra Lake
18	*Lecane (Lecane) curvicornis* Murray	+	+
19	*L. lauterborni* Haner	+	-
20	*L. leotina* (Turner)	+	-
21	*L. luna* (Muller)	-	+
22	*L. papuana* (Murray)	+	-
23	*L. ungulate* (Gosse)	+	-
24	*L. bulla* (Gosse)	+	+
25	*L. clostocerca* (Schmarda)	-	+
26	*L. tethis* (Harring & Myer)	-	+
27	*Cephalodella* sp.	-	+
28	*Scaridium longicaudum* (Muller)	-	+
29	*Trichocerca pusilla* (Jennings)	+	-
30	*Asplanchnopus bhimavaranensis* Dhanapathi	+	-
31	*Filinia opoliensis* (Zach.)	+	-
32	*F. terminalis* (Plate)	+	-
33	*Testudinella patina* (Hermann)	-	+
34	*T. mucronata* (Gosse)	+	+
	CLADOCERA		
1	*Diaphanosoma sarsi* Richard	-	+
2	*Daphnia cornuta* (Jurine)	-	+
3	*Scapheloberis kingi* Sars	-	+
4	*Moina micrura* Kurz	+	-
5	*Macrothrix spinosa* King	-	+
6	*M.laticornis* (Jurine)	-	+
7	*Echinisca triserialis* (Brady)	-	+
8	*Hyocryptus spinifer* Herrick	+	+
9	*Chydorus sphaericus* (O.F.Muller)	-	+
10	*Chydorus parvus* (Daday)	+	-
11	*C. barroisi* Richard	+	+
12	*C. ventricosus* Daday	+	+
13	*C. reticulatus* Daday	+	-
14	*Alona rectangula* rectanguala Sars	+	+
15	*A. rectangula richardi* (Stingelin)	+	+
16	*A. davidi davidi* Richard	+	+
17	*A. davidi punctata* (Daday)	-	+
18	*A. coastata* Sars	+	-
19	*A. pulchella* King	-	+
20	*Kurzia longirostris* Daday	+	-
21	*Camptocercus rectirostris* Schoedler	-	+

BIOTIC PROFILE:

Detailed studies were carried out on the diverse rotifer and cladoceran faunal assemblage in Pocharam lake and Wyra lake during the study periods and given in a Table-4 wherein the occurrences of the species of these twp groups were compared. The shallow littoral regions and also near by limnetic zones play a host to a wide variety of the two zooplankton communities under study *viz.,* Rotifera and Cladocera. Rotifera (34 species) ranked one in order of abundance followed by cladocerans (21 species) in both the lakes. There are 34 species belonging to 14 genera of Rotifera and 21 species belonging to 11 genera in both the lakes. In Pocharam lake 24 species belonging to 9 genera of rotifers and 11 species belonging to 5 genera of cladocerans were observed where as in Wyra lake it was 20 species belonging to 10 genera of rotifers and 16 species belonging to 9 genera of cladocera were noticed. There are also 10 species belonging to 6 genera to rotifers and 6 species belonging to 3 genera of cladocerans that are commonly available in both the lakes.

Among the Claodocera, chydorids, which is well known to occur in littoral vegetated zone of freshwaters in general, have dominated qualitatively in both the lakes. The species like *Moina micrura, Chydorus parvus, C. reticulatus, Alona coastata,* and *Kurzia longirostris* are available in Pocharam lake only. Of the 24 species of rotifers available in Pocharam lake, *Brachionus angularas, B. caudatus, B. calyciflorus f. annureformis, B. calyciflorus borgetti, B. calyciflorus var. dorcas, B. plicatilis, Lecane lauterborni, L. luna, L. papuana L. ungulata, Trichocerca pusilla, Asplanchnopus bhimavaranensis, Filinia opoliensis* and *F. terminalis,* are available in Pocharam lake only.

The species, like. *Brachionus calyciflorus* var. *hymani, B.patulus, Macrochaetus serica, Lepadella ovalis, Lecane luna, L clostocerca, L tethis, Cephalodella* sp., and *Testudinella patina* are available in Wyra lake only. Simlarly the cladocerans like *Diaphanosonia sarsi, Ceriodaphnia cornuta, Scaphelobris Macrothrix spinosa, Echinisca triserialis, Chydorus sphaericus, Alona davidi punctata A. pulchella* and *Camptocerus rectirostris* are available in Wyra lake only.

In Wyra lake the rotifers showed high diversity represented by families *viz.,* Brachionidae, Mytilinidae, Trochotridae, Colurellidae, Lecanidae, Notommatidae and Testudinellidae out of which Brachionidae and Lecanidae equally dominated with eight species each and the rest are of representatives only. Among the cladocerans in Wyra lake, Chydorids have dominated with 9 species and the rest are of representatives only.

Rotifers formed the most dominant plankters of Pocharam lake and showed higher diversity and represented by families *viz.,* Brachionidae (9 species), Mytilinidae, Trichotridae, Asplanchnidae and Testudinellidae (each one species), Lecanidae (6 species) and Filinidae (2 species). Cladocerans in Pocharam lake were represented by the families Chydoridae (9 species), Moinidae and Macrothricidae (each one species).

Among the Rotifers in Pocharam lake, Brachionids dominated the rest taxa, represented by three genera *viz., Brachionus, Keratella and Platiyas.* Out of the three brachionid genera, Brachionus was constituted by eight species with three varieties / forms, the genera *Keratella* and *Platiyas* were represented each with one species. The other important group, Lecanidae, was represented by six species of the genus *Lecane*. In general, most of the tropical alkaline waters are dominated by the genus, *Brachionus,* as it has got adopted with its large number of species, subspecies and polumorphs to the alkaline conditions of the waters. The second dominant group, Cladocera have represented with 11 species belonging to the chydorid family with three genera *viz., Chydorus,* and *Alona* each with four and *Kurzia* with one species. The other two families, Moinidae and Macrothricidae got one species each.

Table 3. showing the station–wise ranges and mean values of physico-chemical parameters of two lakes

Locality	pH		EC		Turbidity		DO		Carb.		Bicarb.		Chloride		T. Hard.		Calcium		Phos.		Nitrates		Sili.		Sulph.		Sod.		Pot.	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
POCHARAM LAKE																														
Poch .(V)	7.76-8.36	8.0	250-290	273	19-156	70	3.4-8.0	5	45-60	53	35-90	65	15-28	21	100-260	162	21-59	35	0.02-0.08	0.05	1-5	3.3	8-11	10	8-10	9	8-32	22	1-3	1.7
Pochl.	7.77-9.16	8.3	250-320	277	24-72	46	3.5-7.6	5.1	40-50	43	30-90	68	18-20	19	100-265	162	19-57	32	0.01-0.06	0.04	2-4	3	8-12	10	9-12	10	9-29	18	1-5	2.7
BGP	7.51-7.76	7.6	320-470	407	8-88	37	2.6-7.5	5.3	0-65	65	85-170	123	33-38	34	155-175	167	26-34	31	0.01-0.05	0.04	1-15	5	9-11	10	6-43	20	11-44	31	1-3	2
RP	7.24-8.64	7.8	250-810	487	15-107	56	3.5-7.0	4.3	30-65	48	60-135	92	23-28	25	90-180	140	16-48	32	0.04-0.07	0.06	6-9	7.3	5-21	12	15-32	25	32-46	38	2-2	2
WP	7.57-9.09	8.3	230-330	267	31-128	73	3.8-7.5	5.4	35-70	58	40-85	55	20-28	24	85-140	122	15-42	24	0.05-0.08	0.07	3-9	6	5-11	8	9-18	13.0	11-28	20	1-2	1.7
KP	7.5-7.8	7.6	350-430	367	49-300	136	2.9-7.8	4.8	0-90	90	75-125	108	23-33	30	160-190	178	26-40	31	0.04-0.07	0.06	1-6	4	7-11	9	15-35	22	13-40	29	1-3	2
PP	7.74-8.78	8.3	270-400	350	38-68	52	4.0-8.2	5.6	40-55	48	50-180	103	18-43	31	95-280	180	19-33	26	0.01-0.09	0.06	1-8	5	6-9	8	10-19	13	24-36	30	1-2	1.7
WYRA LAKE																														
SN	7.2-7.6	7.3	580-510	660	46-170	127	3.9-5.5	5	0-50	50	135-320	238	58-93	71	135-150	142	21-37	29	0.05-0.28	0.18	2.0-10	6.3	5.7-28	14.2	43-97	64	73-90	79	3.0-7.0	4
LP	7.3-7.7	7.6	520-700	603	25-128	70	2.5-4.8	3	0-40	40	215-250	235	50-65	59	140-150	145	21-23	22	0.04-0.13	0.07	3.0-8.0	5.2	3.3-22	12.1	16-46	30	64-92	76	3.0-5	4
WY	7.1-7.9	7.5	420-590	507	6-61	27	1.36.0	4	0-45	45	125-235	190	27-88	59	150-175	165	22-32	26	0.03-0.12	0.08	1.9-4.32	2.7	5.2-14	9.4	19-43	32	30-79	57	2.0-4.0	3
SP	7.1-7.9	7.6	490-620	547	15-18.4	76	1.0-6.0	4	0-40	40	190-235	218	55-73	64	125-245	187	25-29	27	0.04-0.1	0.07	2.0-3.15	2.72	5.0-16.0	10.3	25-42	34	38-68	57	2.0-3.0	8
LG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MV	7.4-7.7	7.5	440-560	500	12.64	38	5.0-6.0	6	0-45	45	140-260	200	48-98	73	105-155	130	21-37	29	0.05-0.13	0.09	3.0-4.0	3.5	5.0-10	7.5	30-44	37	30-68	49	3.0-4.0	4
NP	7.3-7.6	7.4	360-510	435	15-54	35	5.1-5.8	5	0-45	45	130-265	198	38-95	67	95-145	120	27-39	33	0.04-0.09	0.065	2.0-5.0	3.5	4.0-12.0	8	13-38	25.5	40-65	53	2.0-3.0	2.5
RG	7.0-8.7	7.8	440-600	523	6-57	27	3.9-5.4	5	0.25	25	175-240	215	43-110	79	125-165	150	25-42	33	0.04-0.11	0.08	2.0-5.0	3	3.0-15.0	9.7	18-90	49	42-66	58	2.0-3.0	3
BP	7.3-8.2	7.8	440-580	513.3	5-12	11	4.0-5.6	5	0-35	35	180-250	217	38.65	71	125-150	137	28-37	33	0.04-0.11	0.07	2.0-3.0	2.3	6.0-14.0	10.7	23-45	35	40-64	55	2.0-3.0	2

I – Ranges II – Mean values / Poch. (V)-Pocharam (V), Pochl.-Pochammaralu, BGP-Burugapalle, RP-Rajpet, WP-Wadalparti, KP-Kpttapalle, PP-Polkampet / SN-Siddikhnagar, LP-Lallapuram, WP-Wyra, SP-Singarayapalem, LG-Lallurugudem, MV-Mallavaram, NP-Narayanapuram, RG-Reddigudem, BP-Brahmanapalle

Brachionus diversicornis, B. falcatus, B. quadridentatus, Platiyas quadricornis, Lecane curvicornis, L bulla and *Testudinella mucronata* among rotifers where as *Ilyocriptus spinifer, Chydorus barroisi, C. ventricostus, Alona rectangula rectangula A . rectangula richardi* and *A. davi*di davidi are available in both the lakes.

As is quite obvious from the above results that these two impoundments differed significantly in their limnological attributes and these two can be categorized as oligotrophic lakes. In general, these two lake waters showed seasonality in most of the physico-chemical factors which mainly depend on the monsoon *i.e.,* insufficient rains or heavy rains in the preceding periods. The physico-chemical parameters of both the lakes are also indicating that these two are clean waters, but abnormal values of the nutrients indicate that these are slightly polluted and the reason can be attributed to agricultural run off or anthropogenic activities. Both the lakes were characterized by highly alkaline, soft to hard, moderate turbidity and the chloride content of these two water bodies re indicating their potability.

The parameters like pH, turbidity, Dissolved Oxygen (DO), carbonates and silicates are at higher side in Pocharam lake than the other, where as the factors like electric conductivity, bicarbonates, chloride, phosphates, sulphates, sodium and potassium of Wyra lake were at side but total hardness and calcium are more or less equal both the water bodies . The reasons for the variations in the levels of ranges of physico-chemical parameters of both the lakes, can be attributed to the differences in the quantum of rain fall, domestic sewage that is letting into the water bodies, agricultural run off, anthropogenic activities at the lake basins… *etc.,* during the study periods.

SUMMARY

Studies on the comparative study on physico-chemical and biological characteristics with special reference to Rotifera and Cladocera of two Deccan wetlands *viz.,* Pocharam lake and Wyra lake that are situated in Andhra Pradesh have been carried out during 2003-04 and 2006-2007. These studies were conducted on seasonal basis *i.e.,* winter, summer and monsoon during the periods. The abiotic factors revealed that the parameters like pH, turbidity, DO, carbonates and silicates are at higher side in Pocharam lake waters than the other and the factors like electric conductivity, Bicarbonates, chloride, phosphates, sulphur, sodium and potassium of Wyra lake waters are at higher side. But total hardness and calcium values are more or less equal in both the lakes. The biotic factors revealed the presence of 24 species belonging to 9 genera of Rotifera and 11 species in 5 genera of cladocera in Pocharam lake while in Wyra lake it was 20 species under 10 genera of Rotifers and 16 species belonging to 9 genera of cladocerans.

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