Table 1 : Physico-chemical conditions and algal biomass production using *Scenedesmus obliqus* :

Tests	Detention period in days							
	Control : Raw sewage				Raw sewage + *Scenedesmus obliqus*			
	0	2	4	6	0	2	4	6
A. Physical :								
Water temperature (°C)	27.5	28.0	29.0	28.0	27.5	28.0	29.5	28.5
Colour	Brown	Brown	Brown	Brown	Brown	Green	Green	Green
pH	7.85	7.9	8.0	8.3	7.85	8.1	8.4	9.2
B. Chemical (mg/l):								
Phenolphthalein alkalinity	25	35	40	42	25	50	65	80
NH_3-N	28.8	11.8	9.0	5.6	31.8	4.9	4.1	3.5
PO_4	12.5	15.7	14.8	14.0	12.5	4.1	2.6	2.1
BOD_5 at 20°C ≠	280	191	125	83	280	67	43	35
COD ≠	372	294	200	132	372	96	72	56
C. Biological (mg/l) :								
Algal Biomass dry weight	-	-	-	-	-	275	286	282

≠ Centrifuged supernatant.

Table 2 : Physico-chemical conditions and algal biomass production using *Microcystis aeruginosa*.

Tests	Detention period in days							
	Control : Raw sewage				Raw sewage + *Microcystis aeruginosa*			
	0	2	4	6	0	2	4	6
A. Physical :								
Water temperature (°C)	28.4	28.4	28.5	28.6	28.4	28.5	28.6	28.6
Colour	Brown	Brown	Brown	Brown	Brown	Bluish Green	Bluish Green	Bluish Green
pH	7.8	7.85	8.0	8.2	7.8	8.3	8.8	9.8
B. Chemical (mg/l):								
Phenolphthalein alkalinity	15	26	30	33	15	38	62	84
NH_3-N	33	30	28.6	26.4	33	11.4	7.2	4.4
PO_4	17.5	16.0	14.0	13.5	17.5	10.0	8.9	6.8
BOD_5 at 20°C *	196	156	124	98	196	70	42	18
COD *	336	250	198	156	336	106	66	30
C. Biological (mg/l):								
Algal biomass dry weight	-	-	-	-	-	224	231	236

* Centrifuged supernatant.

Table 3 : Biological Changes using Scenedesmus obliqus

Description	Detention period in days							
	Control : Raw sewage				Raw sewage + Scenedesmus obliqus			
	0	2	4	66	0	2	4	6
i. Dark to light brown filament (Leptothrix ochracea)	Nil	C	C	CC	Nil	r	CC	CC
ii. Organic debris intermixed with the algae.	Nil	Nil	Nil	Nil	Nil	r	C	C
iii. Flocculant-brown precipitate separately seen at the bottom	Nil	r	C	CC	Nil	Nil	Nil	Nil
iv. Ciliophora (Free Swimming)								
Paramoecium (Caudatum)	Nil	r	r	C	Nil	Nil	rr	rr
Spathidium spathula	Nil	rrr	rr	rr	Nil	Nil	Nil	Nil
Paramoecium spp.	Nil	rr	Nil	Nil	Nil	Nil	Nil	Nil
Aspidisca costata	Nil	r	r	r	Nil	r	C	C
v. Ciliophora (Stalked):								
Vorticella spp.	Nil	CCC	C	CC	Nil	Nil	r	rr
vi. Rotifera:								
Lucane spp.	Nil	Nil	Nil	Nil	Nil	r	C	C
vii. Algae:								
Scenedesmus obliqus	Nil	Nil	Nil	Nil	CC	CCC	CCC	CCC
Chlorella vulgaris	Nil	Nil	Nil	Nil	r	rr	rr	CC
Oscillatoria spp.	Nil	Nil	Nil	rrr	Nil	C	CC	CC

C = Common; CC = more common; CCC = most common
r = less common; rr = rare; rrr = stray form.

Table 4 : Bacteriological examination (sanitary aspect) in High-rate aerobic oxidation pond using Scenedesmus obliqus:

Detention period in days	Control : Raw sewage		High-rate : algae treated	
	Coliforms per ml	Total count per ml at 37°C temp. after 24 hours.	Coliforms per ml	Total count per ml at 37°C temp. after 24 hours.
0	16.09×10^{10}	10.2×10^{11}	16.09×10^{8}	11.5×10^{11}
2	16.09×10^{9}	18.7×10^{10}	175×10^{5}	22.3×10^{7}
4	34.00×10^{3}	10.2×10^{7}	14×10^{2}	10.7×10^{6}
6	46.0×10^{2}	14.1×10^{6}	120	13.4×10^{4}

Table 5 : Distribution of a few important attributes among the 200 bacterial isolates from the algal Scenedesmus obliqus - treated High-rate aerobic oxidation pond on different detention periods. Fifty isolates were studied for each detention period. Results expressed as percentage of positive isolates.

Tests	Detention period in days			
	0	2	4	6
Rods	100	100	100	100
Colour : whitish	100	100	100	100
Gram : Negative	100	100	100	100
Flagella: Polar	42	40	46	46
Peritrichous	58	60	54	54
Citrate utilizers	58	70	24	28
Starch hydrolysis	58	58	26	30
Gelatin hydrolysis	70	80	0	0
Tributyrin hydrolysis	32	34	0	0
Catalase activity	100	100	100	100
Reserve materials:				
Glycogen	100	100	100	100
Lipid inclusions	100	100	100	100
Volutin	100	100	100	100

Table 6 : Important biochemical characteristics of the dominant bacteria in High-rate aerobic oxidation pond using Scenedesmus obliqus on different detention periods. 200 isolates studied, fifty on each day. Results expressed as percentage of positive results.

Characteristics	Detention period in days			
	0	2	4	6 66
Acid from glucose	52	52	24	22
Acid and gas from glucose	42	40	26	28
No reaction in glucose	6	8	50	50
Nitrate reduced	58	62	46	54
H_2S formed	14	16	-	-
Hugh & Leifson's medium with glucose:				
Oxidative	48	52	24	22
Fermentative	28	22	26	30
Neutral	20	22	30	24
Alkaline	2	4	20	24

Table 7 : Dominant bacteria in High-rate aerobic oxidation pond with Scenedesmus obliqus on different detention periods. 200 isolates studied, fifty on each day. Results are expressed as percentage of positive isolates.

Microorganisms Genera	Detention period in days			
	0	2	4	6
Achromobacter	12	14	--	--
Aerobacter	4	4	24	28
Aeromonas	14	16	--	--
Alcaligenes	2	4	30	24
Azotobacter	2	--	--	--
Bacillius	16	18	--	--
Comamonas	2	4	20	24
E. Coli	10	2	2	2
Proteus	12	18	--	--
Pseudomonas	16	14	--	--
Zoogloea	8	6	24	22
Zymomonas	2	--	--	--

Table 8 : Dominating bacteria isolated from Assimilating and Endogenous Phases of a High-rate aerobic oxidation pond. 200 isolates studied, fifty on each day. Results expressed as percentage of positive isolates.

Metabolic phase	Assimilating		Endogenous	
	Detention period in days			
	0	2	4	6
Achromobacter	12	14	--	--
Aerobacter	4	--	24	28
Aeromonas	14	16	--	--
Alcaligenes	2	--	30	24
Azotobacter	2	--	--	--
Bacillius	16	18	--	--
Comamonas	2	--	20	24
E. Coli	10	--	--	--
Proteus	12	18	--	--
Pseudomonas	16	14	--	--
Zoogloea	8	14	--	--
Zymomonas	2	--	--	--

Table 9 : Bio-chemical Conditions using Mixed Algae(mg/l).

Tests	Detention period in days									
	Control : Raw sewage					Raw sewage + Mixed algae				
	0	2	4	6	Final % Reduction	0	2	4	6	Final % Reduction
Protein	6.8	3.4	1.9	1.25	82.35	7.6	4.6	0.8	0.8	90
Amino acid nitrogen	5.1	2.4	0.8	0.5	90.2	5.0	2.3	nil	nil	100
Total sugar	68.25	56.44	42.55	29.55	56.7	77.25	47.5	28.1	13.3	82.8
Free sugar	36.55	28.22	20.6	14.6	60.0	36.55	18.8	10.6	5.8	84.1
Organic acids	90.0	70.8	42.0	20.0	77.7	90.0	42.0	12.0	8.2	91.0

Table 10 : Removal of Nutrients during the Assimilatory and Endogenous phases of Algal-Bacterial symbiosis using the two algae and Baroda Raw Sewage (mg/l).

Algae	Scenedesmus obliqus			Microcystis aeruginosa		
	Detention period			Detention period		
Phase	Assimilatory	Endogenous phase		Assimilatory	Endogenous phase	
Days	0 - 2	2 - 4	4 - 6	0 - 2	2 - 4	4 - 6
1. NH_3-N	26.9	0.8	0.6	21.6	4.2	2.8
2. PO_4	8.4	1.5	0.5	7.5	1.1	1.1
3. COD	276	24	16	230	40	36
4. Organic matter	230	20	13.3	191.7	33.3	30
5. Algae formed	275	11	-4	224	7	5