S U M M A R Y

SUMMARY

1. The results of investigations carried out with the three algal cultures using Baroda strained sewage have been furnished and discussed in details. The three algae used are Chlorella vulgaris, Euglena gracilis and Microcystis aeruginosa. The sewage cultures with these three algae were examined for their physico-chemical aspects. The sewage withthe algae Chlorella vulgaris and Microcystis aeruginosa were examined for their biological aspects and with the alga Chlorella vulgaris alone was examined for its bacteriological aspect, and with the alga Chlorella vulgaris alone was examined for its bacteriological aspect, and with Microcystis alone for its bio-chemical aspect on 0.2.4 and 6 days of detention period.

2. BOD_5 and COD reductions after 6 days of detention period varied between 90 to 96%, and algal yield between 261 and 290 ppm, photosyn-thetic oxygen prodution between 358 and 414 ppm; organic carbon utilised up for bacterial synthesis and oxidation varied between 189.1 and 219.2. Nitrogen utilised between 90 and 92%, phosphate phosphorus between 76 and 84%, pH varied between 9.3 and 10.2 coliform and total colonies reduction about 99%.

3. The bacterial sludge formation was very low in high-rate algae treated samples.

4. 200 bacterial isolates have been classified according to certain important bio-chemical tests and their dominancy studied on different detention periods. The most dominant bacteria found on different days are Aerobacter, Aeromonas, Bacillus, Flovebacterium Pseudomonas, Comamonas, Achromobacter, Proteus and Serratia. They are the same as those reportedin activated sludge process.

5. A detailed consideration of the bacterial phase separated from the algal phase ie made with a view to demonstrate how high rates of bacterial oxidation have been attained.

6. Salient features of the algal bacterial symbiosis in high-rate aerobic pond system are dischased. A schematic representation of a balanced system of bacterial oxidation and high rate synthesis is also made.

7. The biochemical changes were also noted during 6 days for bacterial synthesis with respect to free sugar, total sugar, protein, amino-nitrogen and volatile acids. The reduction of free sugar on 6th day is about 86% total sugar 81%, protein 83% amino-nitrogen 81% and in volatile acid is 86%.

8. The dominant bacteria isolated from Assimilatory and endogenous phases vary in genera and percentage in these two phases.

9. In baclogical changes, one species of a rotifera was found in high-rate oxidation pond, in presence of photo--synthetic oxygen, while that were not found in the control raw sewage, where these was no algal production and hence no photosynthetic oxygen available.

10. The 200 bacterial isolates were studied for their hydro--lysing characteristics to starch, gelatin and tributy--rin.

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