Wastewater Treatment and Resource Recovery

Report of a workshop on high-rate algae ponds, Singapore, 27-29 February 1980

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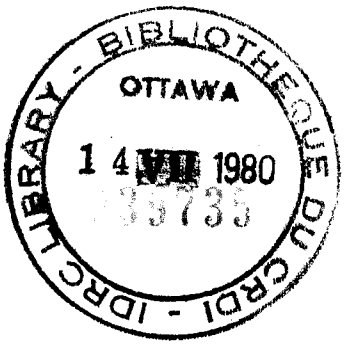

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Contents

The complete texts of the papers presented at the workshop are included in an unedited form on the microfiche pocketed on the inside back cover of this book.

agation in fermented palm-oil mill sludge effluent are as follows: pH, 7; temperature, 35 °C; and fermented sludge dilution, 3–4 times. NO_3^- and PO_4^{3-} additions in the form of $NaNO_3$ and Na_2HPO_4, respectively, at 10 ppm facilitate its multiplication. Growth enhancement effects were also observed for amendments to the salinity and bicarbonate concentrations. It was found through algal culture experiments that *C. vulgaris* could lower the BOD load of fermented sludge from 1080 ppm to 40 ppm, which meets the limits set by the Government of Malaysia. Biochemical analytical evaluation of harvested *Chlorella vulgaris* also demonstrated the possibility of utilizing this species for human consumption, animal husbandry, and fish feeding.

Microbial treatment and utilization of night soil

M.C. Lo (presented by H.W. Huang)

This study is divided into two parts. The first part deals with the efficiency of night soil treatment with photosynthetic bacteria (PSB) and *Chlorella*. The duration of night soil treatment with PSB and *Chlorella* proved to be 20 days faster than the traditional activated sludge or trickling-filter method and 10 days faster than the aerobic digestion method. Furthermore, much less sludge was produced. The second part compares the growth of chickens fed *Chlorella* with the growth results obtained with commercial feeds. With broilers, feed costs were reduced 14–20%, and with laying hens, feed costs were reduced by 18% while 16% more eggs were produced and, on average, the eggs were 5% heavier.

Freshwater cultivation of algae with possibilities of utilizing rural wastes in India

L.V. Venkataraman, K. Madhavi Devi, and M. Mahadevaswamy

Concentrated efforts to utilize algae grown and harvested from fresh water, sewage, and seawater are progressing in India. Indian farmers are increasing the use of blue-green algae as a biofertilizer, and this awareness is helping in efforts to convince and motivate farmers toward profitable uses of algae grown on both fresh water and wastes. Emphasis is being placed on rural applications so that the algal biomass will reach the rural poor either directly as a supplementary food protein or indirectly through animal feeds. Acceptability is a major factor in promoting the use of algae in food; therefore, feed utilization is an immediate objective.

Culture of algae in Bangladesh

F.Z. Majid, Momena Khatun, and Rahima Khatun

Continual use of chemical fertilizers without sufficient organic manure is gradually deteriorating soil quality in Bangladesh. Therefore efforts are being made to use aquatic weeds as a source of organic manure for fertilizer. Also, attempts will be made to supplement livestock feeds with algal protein. Studies to determine the feasibility of this program have been set up. The efforts are designed to develop simple culture methods that will use inexpensive media and indigenous culture vessels such as clay pots.