

### 31-6 Autotrophic Biological Transformation of Nitrogen under Oxygen-stressed and Anaerobic Conditions

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Microorganisms have demonstrated considerable versatility in cycling nitrogenous compounds in natural and engineered environments. Experiments were conducted to study the controllability and potential applications of these less commonly considered phenomena. Stressed biological systems, lacking oxygen and labile organic compounds, with reduced and oxidized nitrogen substrates were investigated. Results demonstrated conversions of soluble nitrogenous compounds that could not be fully explained by traditional nitrification or denitrification. Comparisons are made to reports of others and discussed in terms of environmental engineering significance and items of interest that merit further inquiry are identified.

Key words : ammonium, hydroxylamine, nitrite, nitrate, nitrification, denitrification, nitrogenous compounds

(Japanese Journal of Water Treatment Biology, Vol.34, No. 3, pp.215-230, 1998年9月)