

Hydrolytic enzymes in sewage sludge treatment: A mini-review

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Abstract

Biological wastewater treatment processes can be classified as either aerobic or anaerobic. These two biological treatment processes are each characterised by groups of micro-organisms and their associated enzymes. Hydrolytic enzymes secreted by these micro-organisms are vital for the rate-limiting step of hydrolysis in the treatment of highly polymeric substrates present in sewage sludge. In this mini-review, the effects of mass transfer limitation, metabolic intermediates, extracellular polymeric substances (EPS), electron acceptor conditions and pH and temperature on the activity of these enzymes are summarised. The most salient and current perspectives of the significance and the role that hydrolytic enzymes play in sewage sludge treatment are highlighted.

Keywords: EPS, floc, hydrolases, pH, sewage, sludge, temperature