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Review

Biofiltration of methane

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Biofiltration of methane

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Abstract

The on-going annual increase in global methane (CH₄) emissions can be largely attributed to anthropogenic activities. However, as more than half of these emissions are diffuse and possess a concentration less than 3% (v/v), physical-chemical treatments are inefficient as an abatement technology. In this regard, biotechnologies, such as biofiltration using methane-oxidizing bacteria, or methanotrophs, are a cost-effective and efficient means of combating diffuse CH₄ emissions. In this review, a number of abiotic factors including temperature, pH, water content, packing material, empty-bed residence time, inlet gas flow rate, CH₄ concentration, as well biotic factors, such as biomass development, are reviewed based on empirical findings on CH₄ biofiltration studies that have been performed in the last decades.

Keywords:

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