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Reduction of methane emission from landfill using biocover as a biomitigation system: A review

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Methane (CH_4) emission from landfills ranks third major source of anthropogenic emission. It has been observed that atmospheric CH_4 concentration is more than doubled in last 150 years.CH_4 has 23 times more global warming potential (GWP) than that of carbon dioxide (CO_2). Therefore, the growth and field application of cost-effective techniques are essential for decreasing the rate of CH_4 emissions from landfills to minimize the associated risk of global warming and human health. Microbial oxidation of CH_4 has been universally observed in a variety of bio mitigation system. The present paper attempts to describe the key issues linked with CH_4 oxidation process in landfill bio cover and underlying kinetics of CH_4 oxidation. Influence of several controlling parameters, such as CH_4 and oxygen concentration, properties of the cover material, temperature, moisture, pH on CH_4 oxidation in landfill biocover system is also discussed.

Keywords: CH_4 emission, CH_4 reduction, Global warming, Microbial oxidation