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ACCEPTED MANUSCRIPT

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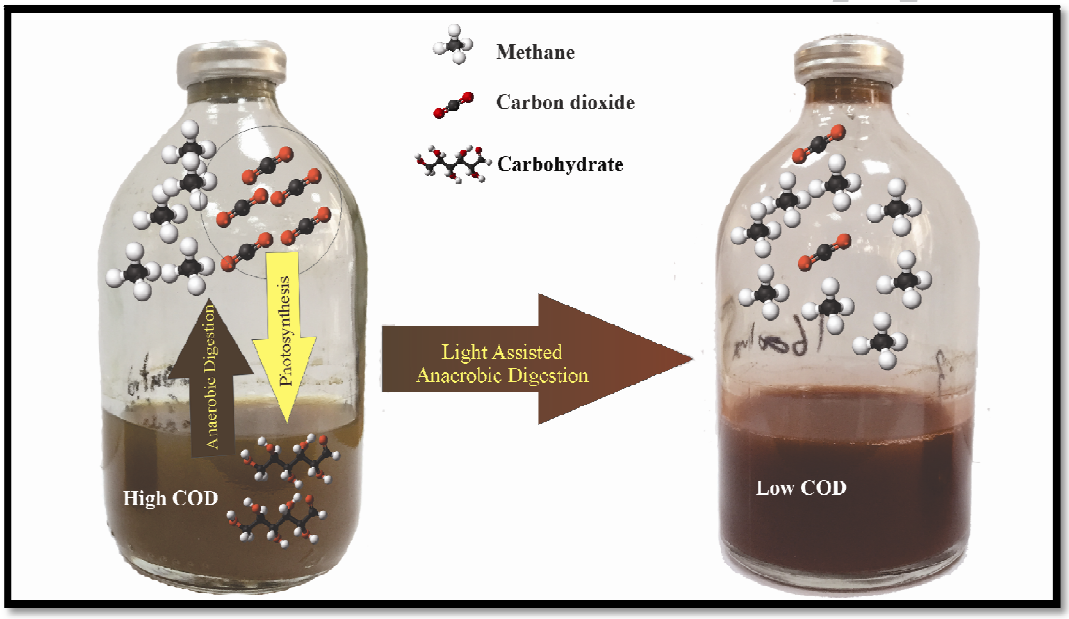
Graphical abstract



Abstract

Bio-methane is an attractive energy source which can be produced by utilization of waste sources through anaerobic digestion process. However, low methane content of biogas hinders its effective applications. In this study, photosynthesis reaction was used concurrent with anaerobic digestion as an effective controlling mechanism for biogas up-grading and enhancement of its methane content. For this purpose, photosynthesis assisted anaerobic digestion of cattle manure leachate was conducted at light intensities of 2700, 5900 and 9600 Lux in batch bioreactors. The effect of

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