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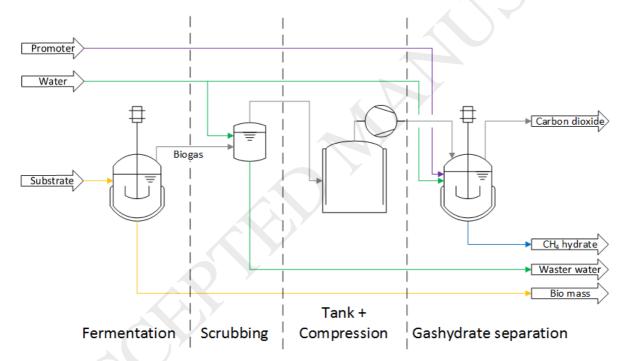
## ACCEPTED MANUSCRIPT

# Development of a Biogas Production and Purification Process using promoted Gas Hydrate Formation – A Feasibility Study

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#### Graphical abstract



#### **Highlights**

- Feasibility Study combining biogas production and hydrate forced gas separation
- Startup of a biogas production via fermentation of a mixed culture from sewage sludge
- Finding of an optimal promoter system with improved separation efficiency
- Separation efficiency determined to show proof of concept
- Construction of a McCabe-Thiele-diagram to determine necessary stage number

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