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CO inhibitory effects on glucose acidogenic fermentation and aceticlastic methanogenesis

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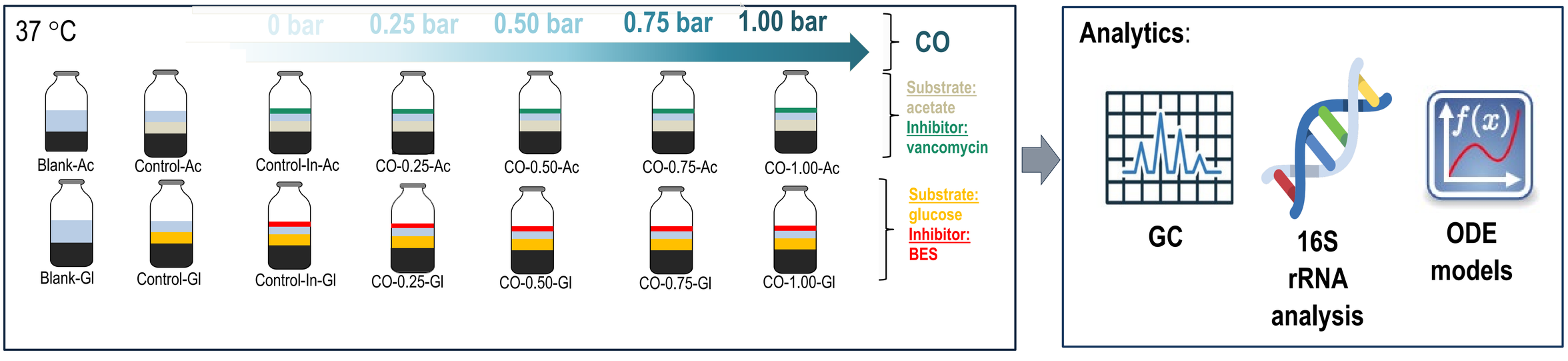
Introduction

Expanding the array of feedstocks for AD and biomethane production is key for the achievement of carbon neutrality goals. CO is a valuable carbon and energy source present in industrial off-gases, e.g., syngas from the gasification of recalcitrant feedstocks. CO fermentation processes can be combined with AD in the perspective of system optimization. This study investigates **CO inhibitory** and **resilience** effects of **aceticlastic methanogenesis** and **glucose acidogenic fermentation**.

Methodology



Results

Aceticlastic methanogenesis

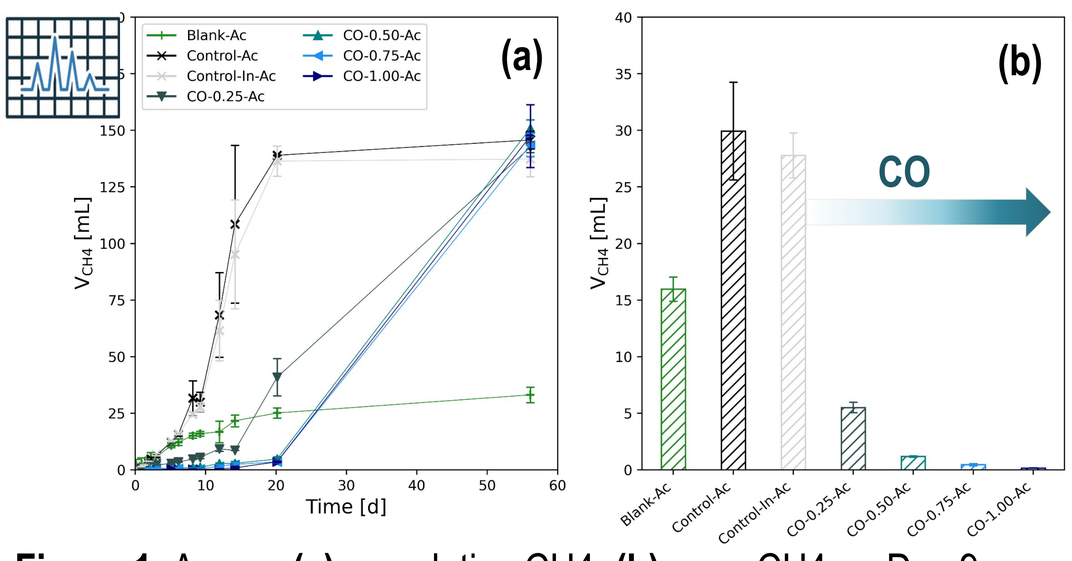


Figure 1: Ac-exp **(a)** cumulative CH4; **(b)** cum. CH4 on Day 9

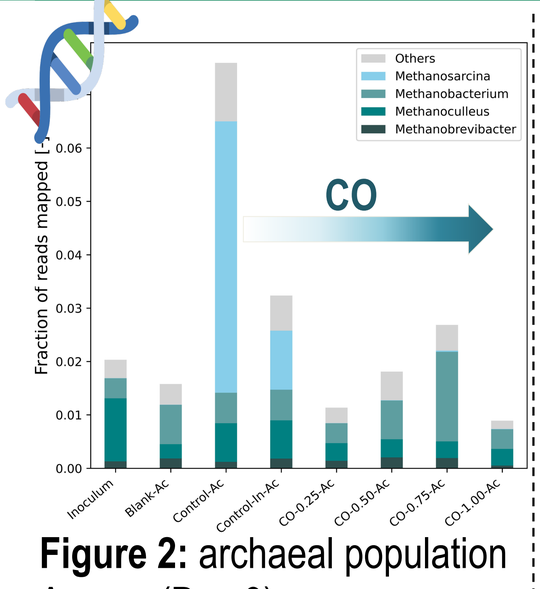


Figure 2: archaeal population Ac-exp (Day 9)

Glucose acidogenic fermentation

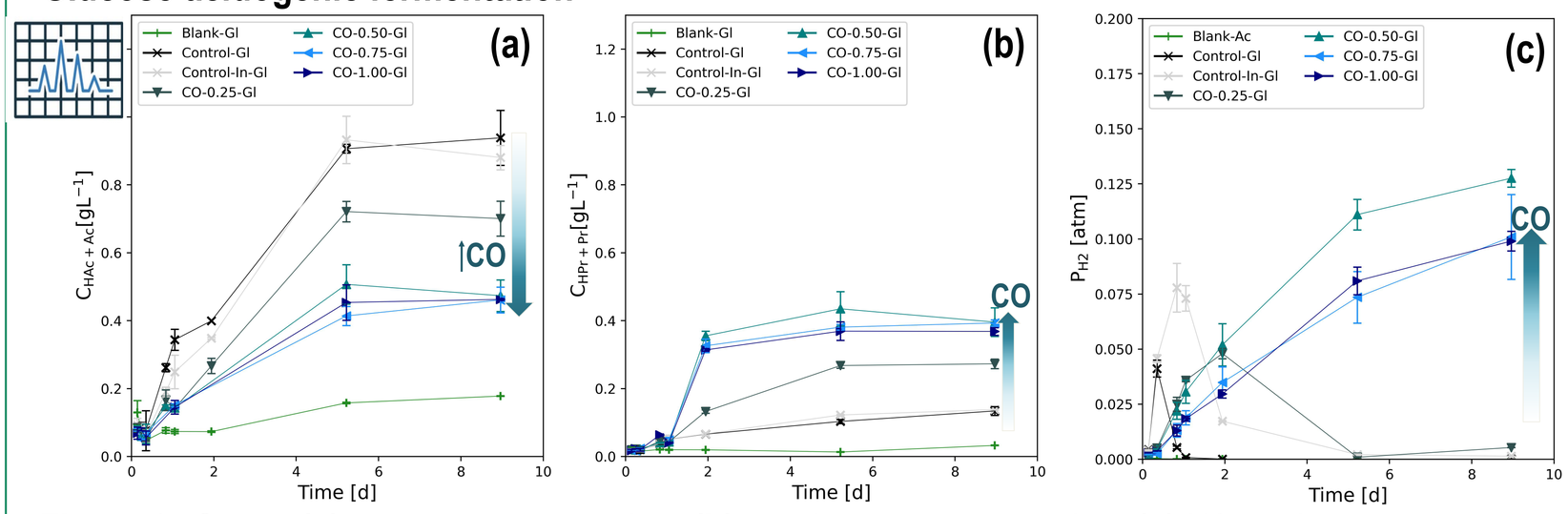


Figure 3: Gl-exp **(a)** acetate concentration; **(b)** propionate concentration; **(c)** H2 partial pressure

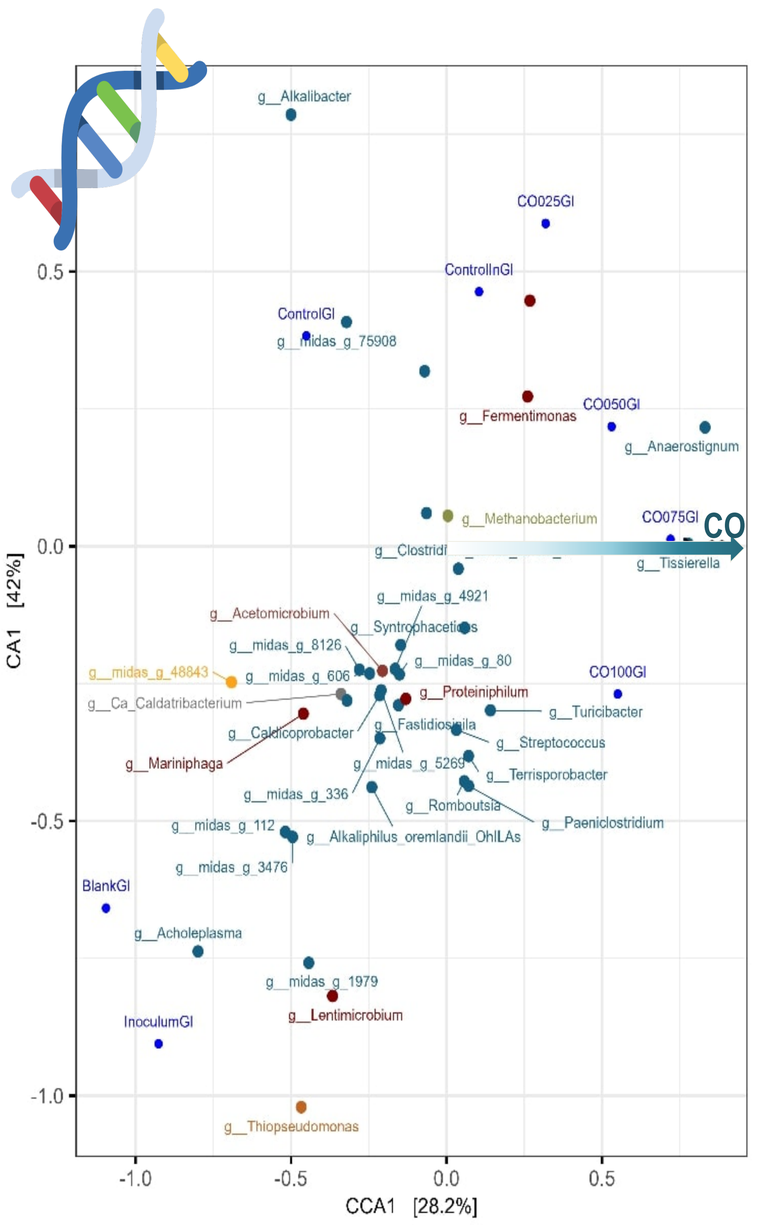
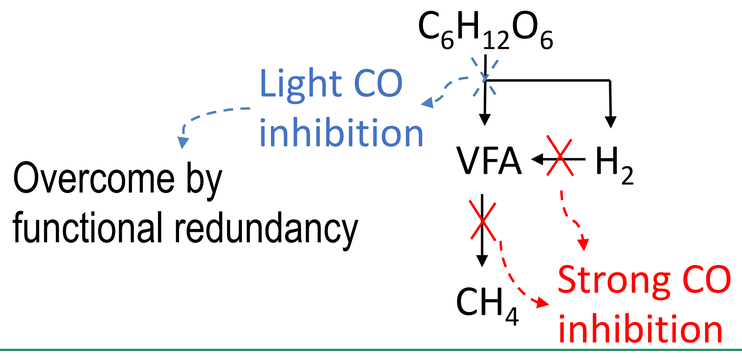


Figure 3: CCA analysis bacterial population (Day 5) Gl-exp

Conclusions



Acknowledgements

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