

## Comparison of Isoprenol Production from Sorghum Biomass Hydrolysates using Engineered Microbial Hosts

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**Project Goals:** Establish the scientific knowledge and new technologies to transform the maximum amount of carbon available in bioenergy crops into biofuels and bioproducts.

### Abstract:

Biologically produced Isoprenol can be chemically converted to DMCO<sup>1</sup>, an aviation fuel. While many microbial hosts have been engineered to produce isoprenol on defined growth media<sup>2,3</sup>, it is essential to understand the host response to renewable carbon feedstocks. In this study we compare a range of engineered microbial hosts - *Pseudomonas putida*, *Corynebacterium glutamicum* and model microbes such as *Escherichia coli*, for production of isoprenol using ionic liquid-pretreated, dry and ensiled sorghum biomass hydrolysates supplemented growth media. Growth of all the three hosts was not significantly affected and the highest production of ~ 1 g/L isoprenol from ensiled biomass hydrolysate supplementation was observed. Residual sugar analysis also enabled understanding of host capability to utilize the sorghum biomass components for growth and production. The observed metabolic flux rerouting on hydrolysates needs further investigation using functional genomics. Improving fitness using adaptive laboratory evolution will also help to optimize this bioconversion process for sustainable production of biofuels from real world carbon streams.

### References

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