EFFECT OF BULKING ADDITIVES ON BIOCHEMICAL CONVERSION OF BIOMASS IN HIGH-SOLIDS FERMENTORS

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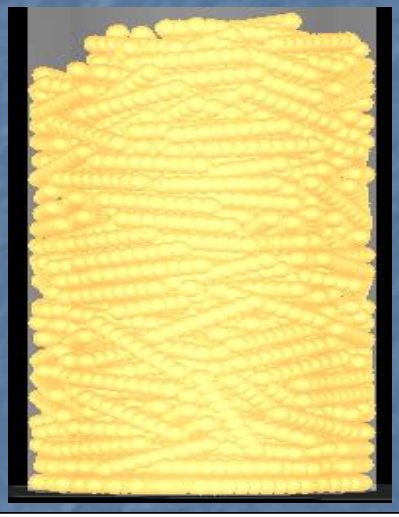
We have shown that the production of methane increases through the use of inert bulking additives in high-solids fermentors. Bulking additives increase the porosity of the biomass particle bed and increase fluid-solid contacting. We explored this phenomena via a combination of reactor experiments and discrete element method (DEM) simulations of particle packing.



- Experiments showed that increasing the concentration of the inert bulking additives increases conversion.

- DEM simulations successfully predicted the packing fraction of elongated cylindrical particles mimicking the dimensions of the biomass particles.