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A study for the chemical markers of *Pseudomonas punonensis*.

At American Crystal Sugar (ACS), many microbial species have been identified using deep sequencing of 16S rRNA gene PCR amplicons with the MinION sequencing device (Oxford Nanopore Technologies). These identifications are from the evaluation of sugar beets, sugar beet storage conditions, and factory process samples. There have been many common microbes identified, such as *Leuconostoc*, *Pseudomonas*, and *Aerococcus*. There have also been lesser known microbes found in abundance, such as *Gloeotheca*, *Sphingobacterium*, and *Agronema*. *Leuconostoc* and many of the lactic acid bacteria have been well documented for the metabolites that they generate in the metabolism of sucrose, glucose, and fructose. The lesser known microbes identified at ACS have unknown effects to their existence in the beets and process juices. In a current study, a common species, *Pseudomonas punonensis*, was evaluated for the potential capability to metabolize sucrose and subsequent metabolite production. *P. punonensis*, a Gram-negative bacilli, was grown both aerobically and anaerobically at 28^o C and below 10^o C in tryptic soy broth. The metabolites (chemical markers) monitored at ACS are lactic acid, volatile fatty acids (VFAs), ethanol, and invert sugars (glucose and fructose) by high-performance liquid chromatography (HPLC). This species of *Pseudomonas* was not able to metabolize sucrose (lack of invertase) as an energy source. It did, however, utilize glucose and fructose as energy sources.