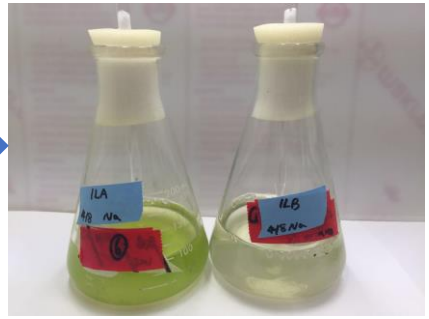
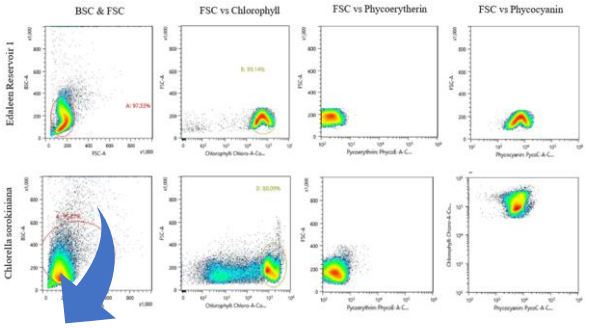
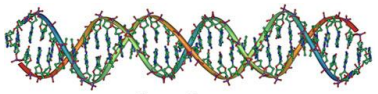
Highlights of isolated mixotrophic extremophiles for application in animal wastewater systems



Fluorescence-based cell sorting



ITS region	Primer sequence (5'→3')
ITS4	GGAAGTAAAAGTCGTAACAAGG
ITS7	TCCTGGTTAGTTTCTTTTCC



Genome Sequence

AGATAACTGGGCCCCTGCGCTCAGGAGGCCTTCACCCTCTGCTCTGGGTAAAGGTAGTAGA

Fragment Reads

AGATAACTGGGCCCCTGCGCTCAGGAGGCCTTCACC
CTGGGCCCCTGCGCTCAGGAGGCCTTCACCCTCTGC
CCCCTGCGCTCAGGAGGCCTTCACCCTCTGCTCTGG
TGCGCTCAGGAGGCCTTCACCCTCTGCTCTGGGTAA
CTCAGGAGGCCTTCACCCTCTGCTCTGGGTAAAGGT
AGGCCTTCACCCTCTGCTCTGGGTAAAGGTAGTAGA

- Originated from high-strength animal wastewater
- Tolerant to high ammonia concentration
- Be able to grow with organic carbon
- High protein content
- Effectively uptakes nutrients from wastewater
- Great potential for culturing animal wastewater

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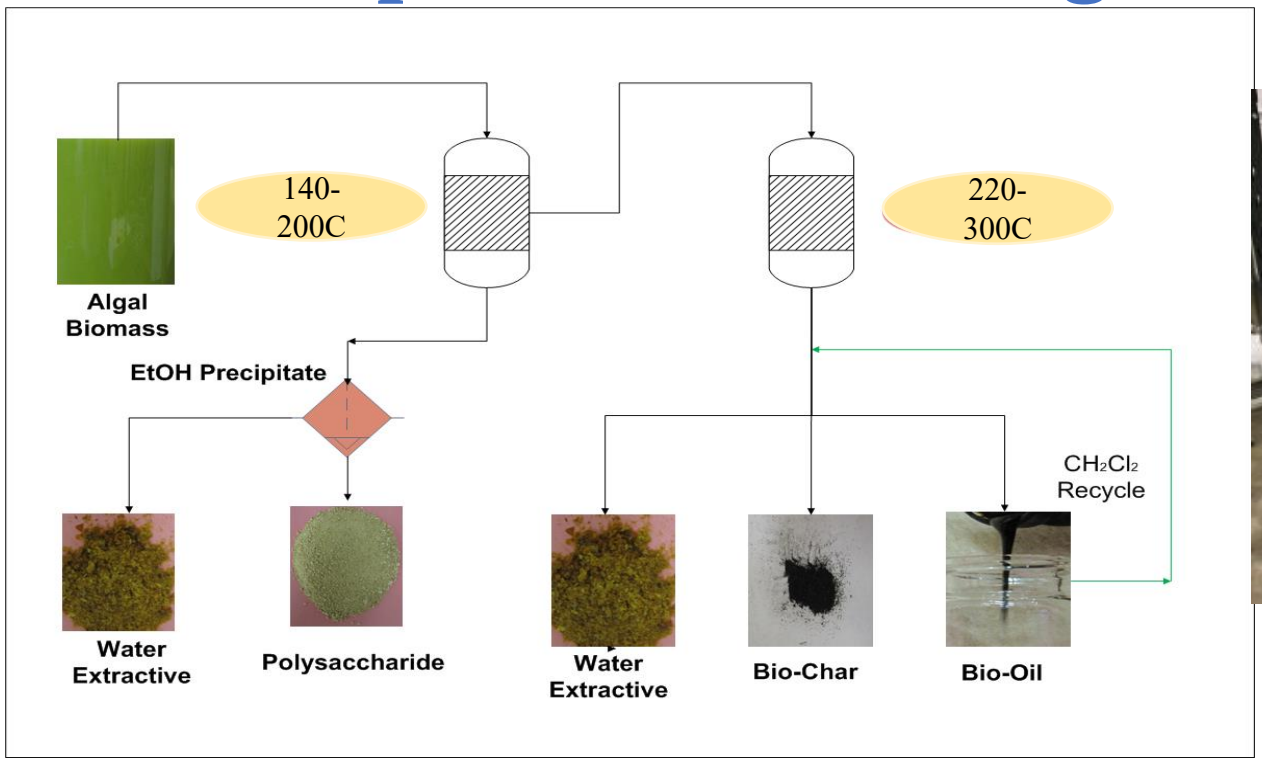
Sequential hydrothermal liquefaction (SeqHTL) Process for harvesting multiple products from algal biomass



- Co-products opportunity
- Flexibility in operational parameters
- Lower overall temperature and pressure range
- More energy efficient and cost effective

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Future research needs and opportunities

- Develop low cost and practical cultivation systems
- Integrate with upstream and down stream waste management processes
- Establish performance standards, and expectations
- Scale up, pilot and demonstration evaluations
- Identify more co-product options
- Develop other matrotrophic and extremophilic strains

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