Literature

Background

Microbial fuel cells.

- Textbook full of information on the subject
- Useful for providing context to the subject as a whole
- Future ideas
- Written by someone with plenty of real world experience
- Gave definitions and explanations for the commonly found acronyms

Microbial Electrochemical and Fuel Cells 2016

- Need to skim over this one
- Will take awhile
- Could have a look at a journalistic review or something as well

Review Papers

Developments in microbial fuel cell modeling

- "Interest has significantly increased in recent decades"
- MFC modelling tends to be neglected
- Introduces the comprehensive type of models
- Anode based
- Cathode based
- Mentioned parameters that are important:
  - Biofilm thickness
  - Fuel flow rate and concentration
  - Temperature (mentions experimental ranging from 15-40 degrees C)

A Review on solid oxide fuel cell models

- No useful information whatsoever
- I think I should exclude this from my literature review

Models for Microbial Fuel Cells: A critical review

- Biofilm thickness matters
- Different models make different assumptions (no shit)
- Doesn't talk about flow rate at all
- INDICATION: Models don't focus on temperature or flow rate
- Therefore my title has a USP

Modelling Papers

A 1D mathematical model for a microbial fuel cell

- BACKGROUND
- Model correctly predicted how substrate concentration adn temperature affect biofilm thickness and cell performance
- Modelled temp ranges of 20,30 and 40 degrees
- Still got USP for lower temperatures

A two-population bio-electrochemical model of a microbial fuel cell

- "Energy from organic waste cannot be recovered using traditional methods"
- This is because it has a complex composition and is usually very dilute
- Demonstrates influence of organic load and external resistance on the MFC power output and long term performance
- Validated with experimental results

Modelling and simulation of two-chamber microbial fuel cell

A generalized whole-cell model for wastewater-fed microbial fuel cells

Electricity generation and modeling of microbial fuel cell from continuous beer brewery wastewater

Experimental Work

Investigation of key parameters influence on performance of direct ethanol fuel cell

- Not strictly about MFCs
- Was included in research to provide insight on fuel cells as a whole
- This includes the key parameters that affect them
- Useful to compare to MFCs
- States that higher flow-rates lead to increased performance
- States that higher temperatures increased voltage for a given current density

Power generation from wastewater using single chamber microbial fuel cells (MFCs) with platinum-free cathodes and pre-colonized anodes

Continuous electricity production from artificial wastewater using a mediator-less microbial fuel cell