

## **Hybrid Thermochemical-bioelectrolytic Reforming of Biomass to Hydrogen**

### **Disclosure Number**

201503487

### **Technology Summary**

Hydrogen production from biomass via a pyrolysis-microbial electrolysis process is described. Conversion of the intermediate bio-oil derived from pyrolysis into hydrogen via microbial electrolysis process enables high conversion efficiency, yield and productivity of biohydrogen as well as relatively low greenhouse gas emissions. The microbial electrolysis step includes breakdown of the water-soluble bio-oil compounds by anode microorganisms enabling efficient production of hydrogen. The use of microorganisms reduces the cost of catalyst necessary to convert biomass intermediates into hydrogen.

### **Inventor**

BOROLE, ABHIJEET P  
Biosciences Division

### **Licensing Contact**

CALDWELL, JENNIFER T

UT-Battelle, LLC

Oak Ridge National Laboratory

Rm 137, Bldg 4500N6196

1 Bethel Valley Road

Oak Ridge, TN 37831

Office Phone: (865) 574-4180

E-Mail: [CALDWELLJT@ORNL.GOV](mailto:CALDWELLJT@ORNL.GOV)