



- 3 year innovative R&D project started 2013.
- Project Aim: to exploit a new technology to add value to business activities of member organisations of European Forestry Associations.
- €2.4 million grant from the European Union under the EU FP7 Research for the Benefit of SME Associations Programme.
- Biomass fractionation technology patented and owned by Bio-Sep Limited of the UK.
- Current Task: to scale up technology demonstrated in the laboratory to 50 kilogram per hour pilot plant to demonstrate the economic benefits of the process, and its potential for medium and large scale commercial operation.

Laboratory Test Rig



50 kg/hr Pilot Plant



- The BioSonic reaction is an ultrasonic enhanced organosolv process, which permits a significant reduction in operating temperature and pressure, and therefore energy, from that required by conventional biorefining operations.
- The technology, which is simple, adaptable and efficient, uses non-toxic chemicals and can be scaled for standalone biorefining or used as an alternative to current front end processes.
- The process is carbon friendly from end to end; carbon dioxide absorbed by the biomass during growth is not released.

Feedstock

- Surplus and waste lignocellulosic biomasses, for example hard and soft woods, straws, miscanthus and rye grasses, sugar cane bagasse, palm frond etc.
- Such biomasses are cellulose, hemicellulose and lignin rich, and there is minimal waste per tonne of feedstock.
- Opportunity to exploit surplus/waste feedstock and utilise unused low quality land for the production of biomasses suitable for processing into high value chemical products.

Product Markets

- Cellulose: platform chemicals, paper and printing products, textiles, fibres, plastics, building materials, paint, lacquers, etc.
- Sugars: pharmaceuticals, food and drink supplements, cosmetics, domestic and personal products, veterinary and agricultural uses etc.
- Lignin: platform chemicals, and as a binder, dispersant, emulsifier and energy source.

Next Steps

- Scale-up to a 50,000 tonne/year (8 tonne/hour) commercial demonstration plant.
- Licence technology for standalone and/or integrated biorefining purposes.

