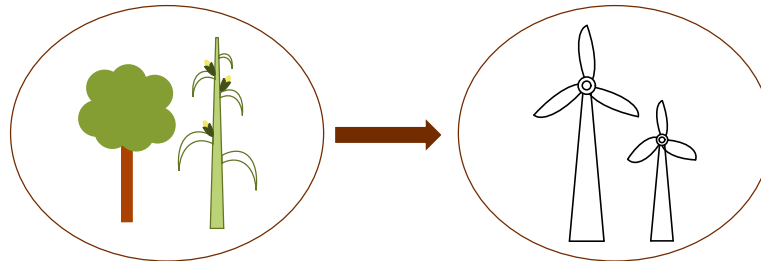


Fractionation of biomass using organic solvents

Topic suitable for Master's Thesis / Plant Design Exercise



Fiber reinforced plastics combine superior mechanical properties with low weight. They are widely used in various industries, for instance in the production of aerospace components or wind turbine blades. In their production, glass or carbon fibers are reinforced with epoxy resins.

Typically, epoxy resins are synthesized using bisphenol-A (BPA), a petrol derived chemical suspected of having adverse effects on human health. A possible replacement of BPA in the production of epoxy resins is lignin, one of the main constituents of biomass. Suitable lignin for the application in the resin industry can be extracted from biomass using organic solvents. The lignin can then be precipitated from the resulting solution, to produce high purity lignin.

The goal of this thesis is to investigate the influence of extraction conditions and type of solvent on lignin properties. The experiments will be performed in a batch reactor at the institute's laboratory. For your master's thesis you will be employed at the institute for eight hours per week for six months.

Scope:

- Preliminary literature research
- Conducting laboratory experiments and necessary chemical analysis
- Documentation of results in a final thesis



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