Possibilities of forest bioproducts -new innovations

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Introduction

Bioenergy is an important part of the forestry business. Approximately 16% of the energy generated in Finland comes from wood, while the national forest industry produces 70% of the country's renewable energy.

The forest industry is going through a turbulent period characterized by the promotion of new products and business models oriented towards biofuels and the development of innovative materials based on wood. Finland participates in important EU investment projects in the framework of the use of biomass. [1]

Bioactive compounds

A compound that has an effect on living organism is called bioactive compound. Plants use bioactive compounds as a protection and these compounds can be found everywhere in the forest.

Bioactive compounds can be used in a various ways, for example as antibiotics, antioxidants and pesticide. Compounds from nature are more safe than synthetic compounds made in laboratory, because we already know how these compounds act in the nature. [2]

Pulp products

Cellulose derived from wood is used in many sectors of the economy, for example in: building, retail, food and beverages, manufacturing, publishing, pharmaceutical, cosmetics, confectionary hygiene and textiles.

- Positive for the environment is low emission of pollutants during the production of cellulose. The most pollutants go to the water, but it is purified to the extent that living organisms like fish could live there. Disposal of the waste from the cellulose is also much simpler.
- Mixed materials are problematic in separation process. For example plastic and cellulose cannot be separated easily.[3,4,5]

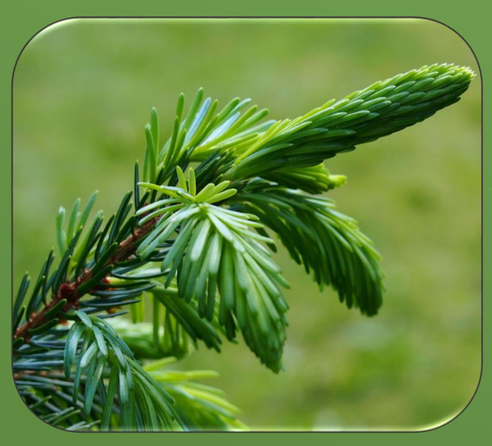
Bio-oil

Fast pyrolysis is a method to produce bio-oil, which can be used almost the same way as the heavy oil.[6] This method used seems at this point the most promising bio-fuel to use as a heating oil (VTT).
Thus it can be used like normal oil, currently it can be only used in industrial use.
Bio-oil adaptation to power plants require small changes to the burning process equipment, because of the pH level of bio-oil)[7]

- Bio-oil saves 90% CO2 emissions compared to fossil ones, almost double the amount of oil is needed compared to fossil fuels.
- Bio-oil is not taxed, at the moment the price is higher than the fossil ones.
- Bio-oil can be made almost from everything

Future potential

- How can we increase usage of bioproducts
  - With political drivers can advance the usage of bio-products
  - Consumers needs to change their habits to more eco-friendly
  - Bio-oil energy efficiency needs to be improved
  - New applications for domestic use
- Critical concerns on forest industry is needed to low-carbon achievement



More information:
http://bit.ly/2Euczkk

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