

Wheat straw used for the production of green chemicals



Crop

Wheat

Triticum aestivum

Croppart

Stem

Application area

Fine chemicals

Status

Research stage

Relevant plant compounds

fibres

Cellulose

Description

OPTISOCHEM goal is to demonstrate the performances, reliability as well as environmental and socio-economic sustainability of the entire value chains, for the transformation of excess wheat straw into bio-Isobutene (bio-IBN) derivatives. To achieve these goals a team of 6 partners, leaders in their field, originating from 4 EU-member states, will join efforts.

OPTISOCHEM consists in showcasing the technical accessibility and economical sustainability of the value chains, from wheat straw to 2 different families of chemicals derived from bio-based IBN.

These compounds, oligomers (DIB, TIB, TeIB) and polyisobutylenes (PIBs) are currently used in a wide range of applications such as lubricants, adhesives, sealants, flavors & fragrances and substituted phenols. This large market is today supplied entirely by products derived from fossil-based isobutene. Products derived from bio-based IBN, using the same process as fossil-based IBN, and with at least as good performances, would provide a renewable supply.

OPTISOCHEM includes the development & up-scaling of bio-IBN production from wheat straw, followed by the production and validation at relevant scale -representative of commercial, established processes- of the bio-based derivatives.

Pros and cons

-  Upgrading of residual flows
-  Circular economy

-  New product on a very competing market

Used conversion methods

Biochemical processes

Aerobic/ Anaerobic fermentation

Chemical processes

Hydrolysis

Resources

<http://optisochem.eu/> Initiative website