



Deliverable 2.20

**Report on basic techno-economic
evaluation of MeBDO production from
levulinic acid or levulinic ester**

**Demonstration of solvent
and resin production
from lignocellulosic biomass
via the platform chemical
levulinic acid**

The project leading to this application has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 720695



Horizon 2020
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About GreenSolRes

The need to establish economic and sustainable large-scale operations for the conversion of renewable resources to chemical building blocks is becoming increasingly urgent in the context of climate change and depleting fossil fuel reservoirs. Pathways for manufacturing of bio-based fuels and chemicals have been developed but most of them rely on sugar and starch crops for feedstock. GreenSolRes aims at a sustainable and competitive industrial production of the platform chemical levulinic acid (LVA) from non-food lignocellulosic biomass. Further, the conversion of LVA and LVA esters into industry relevant building blocks γ -valerolactone (GVL), 1-methyl-1,4-butanediol (MeBDO) and 2-methyltetrahydrofuran (2-MTHF) will take place by new catalytic methods developed during the course of this project. Finally, these chemicals will be upgraded to solvents and resin monomers for the production of high added value adhesives and consumer products. This project was started in September 2016 and has a duration of five years.

Project Coordinator



Project Office



Consortium



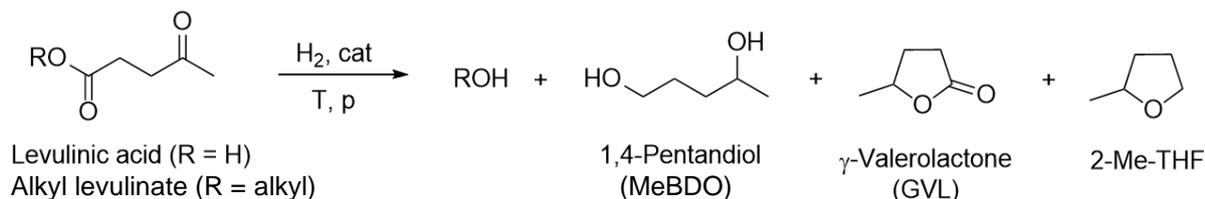
About this document

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Publishable Summary

The present report describes the approach to access 1,4-pentandiol (MeBDO) by heterogeneously catalysed continuous hydrogenation of levulinic acid and a levulinic acid ester respectively. For this purpose, two heterogeneous catalysts have been examined. Depending on the reaction conditions, besides the desired MeBDO also 2-methyltetrahydrofuran and/or gamma-valerolactone (GVL) are being formed in different ratios.



Isolation of MeBDO from the reaction mixture by distillation has been successfully demonstrated on the lab scale.

The basic techno economic evaluation revealed that besides high selectivity and space time yield also commercial access to cheap levulinic acid (ester) is required.