PROJECT SUMMARY

13th ERA-NET Bioenergy Joint Call / 3rd add. call of BESTF3

PROJECT TITLE: Upstream processing of lactose whey for bulk chemicals and energy production

PROJECT ACRONYM: UP-Whey

ABSTRACT

The UP-Whey project will develop and assess new technologies for valorising dairy wastes, in particular sour lactose whey for sustainable production of bulk chemicals such as (i) lactic acid and (ii) bio-butanol. The project will apply the production of biogas (power & heat) from whey as a reference scenario and will consequently design and assess integrated process pathways (biorefineries) for the production of products and energy from dairy wastes and whey feedstocks. Focus for the lactic acid process is not on the fermentation, but on the development of an integrated lactic acid downstream process suitable for complex solutions (e.g. high ash content) using a membrane-supported liquid-liquid extraction approach. A butanol fermentation process will be established and optimized to run on lactose sugar and CO_2 gas as additional carbon source for the fermentation. Developed processes and system integration into whey biorefining pathways will be assessed from a technical, economic (prefeasibility) and environmental (LCA) perspective. The energetic path “whey to biogas” will serve as a reference scenario for assessment.

Start date: 04/2020

End date: 03/2023

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