

BICEPS

Biobased ChEmicals for high-performance PolymerS

Biobased synthesis of specialty biochemicals as innovative building blocks for high-performance polymers and polymer additives

1. Context

There is a critical industrial need for more sustainable, biobased polymers and polymer additives, which show improved properties compared to the current commercial fossil-based products. The resulting high-performance materials can be used in demanding applications such as electronics, automotive, building and construction, where properties such as high temperature performance, high strength, impact resistance or chemical resistance are required. In this light, protocatechuic acid (PCA) and muconic acid (MA) are novel carboxylic acid platform chemicals with highly interesting functionalities, and hence serve as versatile monomers to produce specialty polymers. Additionally, this creates new opportunities for transformation into novel building blocks that may bring valuable new or enhanced properties to polymer end products *via* derivatization, such as trimellitic acid (TMA) and levulinic acid (LA) and its derivatives from PCA/MA.

2. Goals

The goal of this project is to develop innovative biobased building blocks for polymer products with high functional qualities for demanding market applications. This includes further development of advanced engineered yeast strains and cutting-edge fermentation technology with *in situ* product recovery (ISPR) for direct production of PCA and MA, based on the results obtained in the SPICY project. In addition, sustainable (catalytic) conversion technologies will be established to yield valuable LA and TMA derivatives as novel specialty biochemicals. The obtained molecules will be further investigated for the synthesis of new polymers and application tests will demonstrate the potential and added value of these materials in various demanding applications.

3. Call for interest:

The consortium is open to more industrial partners with an interest in novel, biobased building blocks with new functionalities to investigate the production of polymer materials with specific and/or enhanced properties, as well as end users which are interested in evaluating such novel high-performance materials in demanding applications.

4. Budget estimation, Catalisti innovation program & project type

<i>Project ID</i>	
Budget estimation	TBD
Catalisti innovation program*	Biobased Value Chains
Type of cooperation*	ICON

How to reply to this call

Please send an email to adeneyer@catalisti.be and briefly describe your interest and potential contribution to the project. After submission of your offer, you can be contacted to further elaborate your offer. Please contact catalyst Aron Deneyer (adeneyer@catalisti.be, +32 472 37 52 60) if you have questions concerning this call.

Important notice: Partners that wish to participate in Catalisti-supported projects are required to become a member of Catalisti. For more information on membership and membership fees, please contact Aron Deneyer.

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