EnXylaScope

Unleashing **Xylan's Potential with Enzymes** for a Scope of Consumer Products

key aim of the project

To widen the scope and industrial potential of xylan debranching enzymes by developing enzymes with high catalytic activity and wide operation conditions, thereby demonstrating their ability to make

xylan a platform polymer for applications in a variety of consumer products.

The project outcomes are setting the basis for the following **exploitable results:**

- **Four novel xylan debranching enzymes** to be used for xylan treatment.
- **Three enzymatically modified** xylan types.
- **A decision-making platform** to guide and facilitate the enzyme cocktail design.
- **An efficient industrial process** to produce selected enzymes and enzymatically modified xylans.

The potential of the novel enzymes to modify xylans for use in consumer products will be demonstrated by producing **6 xylan-based products** for three sectors.

Cosmetics

Personal Care

Nutraceuticals

Moisture Cream / Lotion , Emollient , Hand Sanitiser , Body wash

Nutraceutical Binder and Prebiotic , Anti-inflammatory and Ati-Microbial Supplement

EnXylaScope leads the path towards **more sustainable products**

Xylan is a highly-abundant lignocellulose polymer that, with appropriate modifications, has outstanding physical and chemical properties which **make it suitable for incorporation in an array of consumer products, replacing less-sustainable product components thereby allowing greener market options for the consumer.** Enzymes are by far the most sustainable and selective option for xylan modification, through the removal of the polymer's side chains (debranching). This leads to a xylan polymer with unique functional properties (such as reduced water solubility and enhanced viscosity) and is suitable for direct incorporation in consumer products (e.g. everyday skin care) or for further modifications to confer the functional properties for more demanding applications (e.g. speciality skin care, personal care etc).

The streamlined research program and strategically-designed experimental methodology of EnXylaScope, **incorporating several key innovations to reduce the complexity of enzyme discovery, production, and application**, will result in xylan being demonstrated as a unique polymer that can respond to the fast-growing greener consumer products industry.

The organisations behind EnXylaScope

EnXylaScope consists of **5 SMEs, 4 research institutes, 2 large industrial partners and 2 universities.** The experienced project partners cover the entire value-chain:

- Culture **collections**
- Enzyme **discovery**
- Production **systems**
- Xylan **production and modification**
- Consumer product **development and evaluation**
- Tools to **accelerate lab to market**
- **Scaled-up** enzyme and xylan **production**
- LCA and **sustainability**
- Dissemination **channels**

Partner organisations of the EnXylaScope Project

more information at:
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