High added value Biorefinery and biorefinery application BCA3

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Sun based Inspiration & Innovation

- Tasty healthy nutrition
- Nutraceutics, prebiotics
- Mind stimulating ingredients

- Cosmetics
  - Biofunctional skin care
  - Botanical
  - UV protection

- Farmaceutics
  - Bioinspired medicine

- Circular Economy
  - Recycling nutrients
  - Biogas fermentation

- Green High performance materials
  - Natural fibres, Biocomposites
Advancing Technology: Faster, Smaller, More Integrated, More Intelligent
—Approaching Human Equivalence
Biobased Economy

➢ Using renewable materials and ingredients

➢ Re-using non-renewable materials and ingredients
Biomass value pyramid: biocascading

- Using all the components from biomass for value creation
- Implementation of cost effective energy efficient green biorefinery processes
- Industrial symbiosis for complete biomass valorisation
Industrial biobased symbiosis: Dutch Biorefinery Cluster
Research line: Greenextraction

- Greenextraction are extraction processes which reduces energy consumption, makes use of renewable solvents, and ensure a safe high quality product. (Chemat et al 2015)

- Natural ingredients (secondary plant metabolites) sourced from botanicals, existing crops/marines or side streams of biomass processing.
From lab to pilot

- 500 ml scale
- 2x10 liter scale
BCA3 business case: Polyphenol
BCA3 business case: Lupeol (5000€/kg)

extraction efficiency for €2500 breakeven
BCA3 business case: pigments and dyes