CirBioWaste

Interreg Euro-MED

Co-funded by the European Union

CirBioWaste

Fostering innovative and sustainable bio-waste management and circular bio-economy in the Mediterranean area

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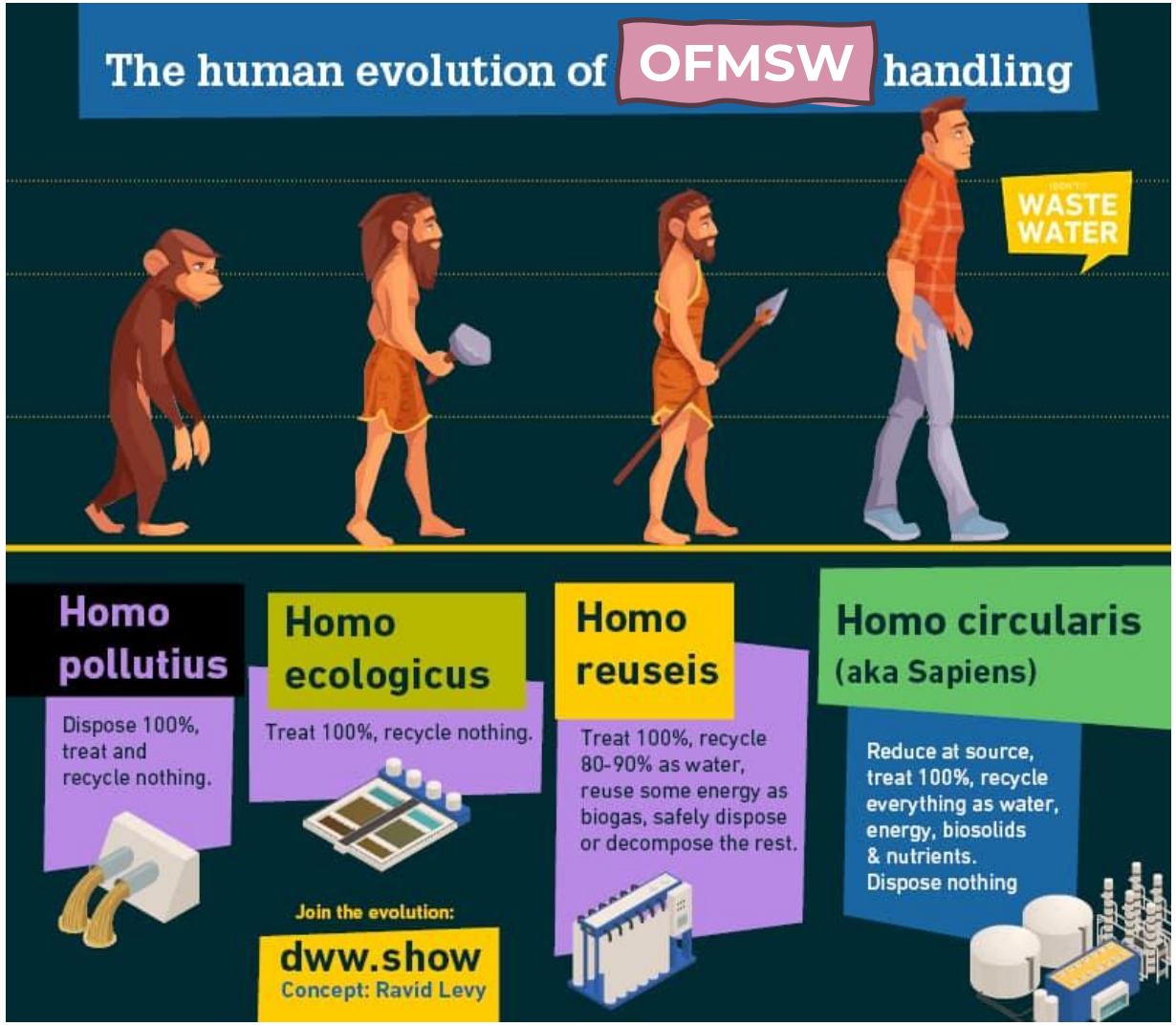
Online Training

Emerging Technologies

January 16th

Esther Molina Peñate

WHAT IF...



Bio-waste as substrate of biotechnological processes ?

From “treatment” to valuable resource

- Highly variable
- Heterogenous in composition
- Unwanted materials

EMERGING TECHNOLOGIES FOR BIO-WASTE TREATMENT

Pyrolysis

Thermochemical conversion of bio-waste without O_2

Products
Biochar (solid), Bio-oil (liquid) and syngas (gas)

TRL
9

Challenges
Costly pretreatment
Market of byproducts
High cost

Solid-State Fermentation

GICOM
Grup d'investigació en Compostatge
Universitat Autònoma de Barcelona

Biochemical conversion of bio-waste with O_2 and specific inoculum

Products
Biosurfactants, bioplastics, biopesticides, enzymes, etc...

TRL
4-6

Challenges
Scale up
Downstream of bioproducts

Extractive technologies

Use of enzymes or other to extract specific components from bio-waste.

Products
Sugars, vitamins, acids...

TRL
4-6

Challenges
Cost of technology vs amount of product to be extracted

Anaerobic bioconversion

Insect rearing

... ?

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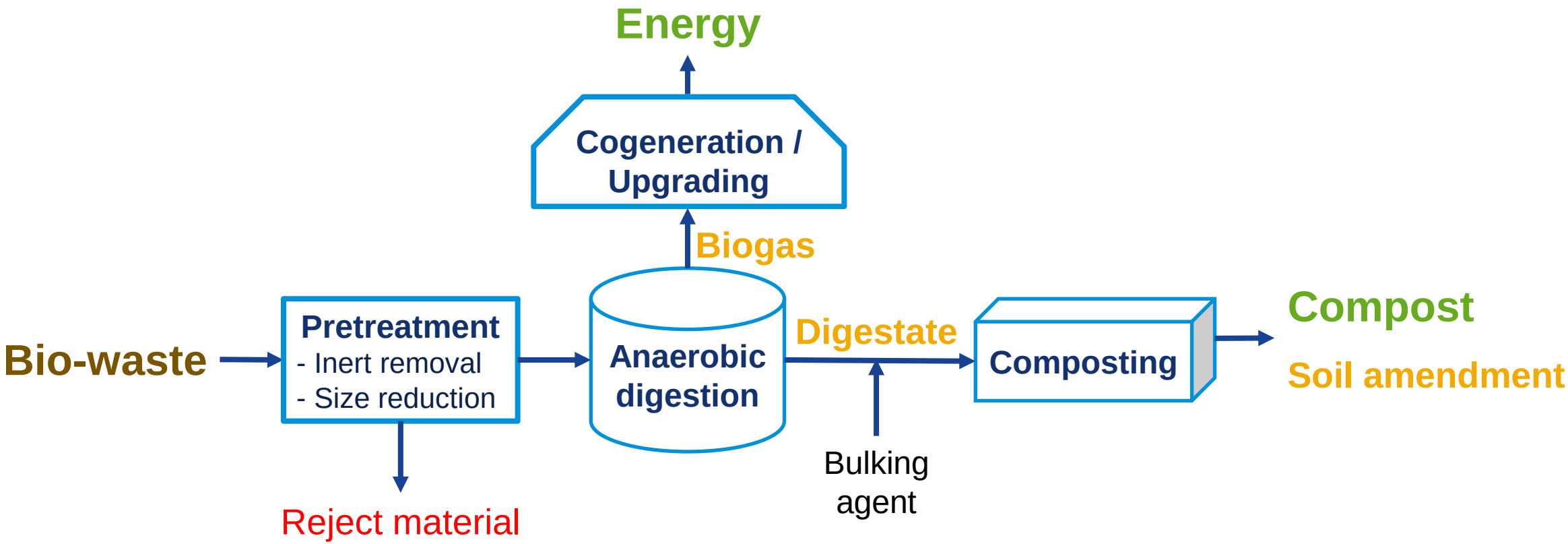
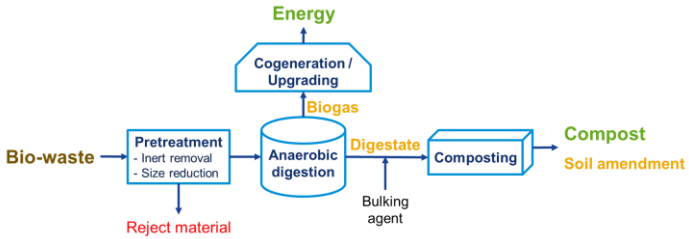
Bio-waste BIOREFINERY



Bio-waste BIOREFINERY



Energy

Cogeneration / Upgrading

Sugars

Biogas

Solid-State Fermentation

Bioproducts

Bio-waste

Pretreatment
- Inert removal
- Size reduction

Anaerobic digestion

Digestate

Composting

Compost

Soil amendment

Reject material

Enzymes

Bulking agent

Solid-State Fermentation

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Bio-waste BIOREFINERY