SusChem 2017 Brokerage Event

Revalorization of citrus peels through energy efficient technologies
Engineering company from France-SME:

(i) Sustainability assessments; LCA, LCC, Social LCA,
(ii) Ecological footprint,
(iii) Resources and energy efficiency assessments,
(iv) Technological and environmental risk assessments
(v) Circular economy business models,
(vi) Risks assessments,
(vii) Social acceptance analysis,
(viii) Production modeling and optimized waste collection and prevention.
EUROPEAN PROJECTS

H2020 & FP7:

- **Nanopack**/18 Partners/11 countries/8M€
- **Karma2020**/16 Partners/9 countries/6M€
- **CloseWeee** /12 Partners / 6 Countries / 6M€
- **Ecoxy**/13 Partners/8 countries/5M€
- **Ecobulk**/29 Partners/10 countries/10M€
- **ValueMag**/Partners/9 Countries/5M€
- **Ligniox**/10 Partners/7 Countries/4M€
- **CH2P**/8 Partners/ 5 countries / 4M€
- **Aquanes**/ 30 Partners / 9 Countries / 8.7M€
- **PrecoM**/ 17 Partners/7 Countries/6M€.
- **JOIN’EM**/14 Partners/6 Countries /4M€
- **Fuel from Waste** / 8 Partners / 7 Countries / 3.6M€
- **Grail**/15 Partners/ 10 Countries / 6M€
- **Innobite**/ 9 Partners / 6 Countries / 4M€
- **Water4India**/ 15 Partners / 9 Countries / 4M€
- **Noshan**/ 12 Partners / 7 Countries / 4M€
THE CONCEPT:

Eco-Friendly Extraction of Pectin and Essential Oils from Orange and Lemon Peels. Results obtained at laboratory and semi-industrial scales: high yields and quality of the bioproducts obtained.

These results, together with the environmental viability of the process support forthcoming commercialization of the technology.

TOPIC:

- CE-SPIRE-02-2018: Processing of material feedstock using non-conventional energy sources (IA)
- BBI-2018
EXPECTED IMPACT

• **Citrus Value Chain:**

  • (i) Improvement in energy efficiency of at least 30%, (ii) Improvement in resource efficiency of at least 30%, (iii) Decrease in CO2 emissions by at least 40%, (iv) Decreased OPEX and CAPEX by at least 15%.

  • State-of-the-art: (i) pectin extraction from citrus peel via hydrolysis in hot water under tightly controlled conditions, (ii) Essential Oils: mechanical treatment of the citrus fruit or via steam-distillation.

  • Cross sectorial: Energy reduction in industrial processes through the implementation of green technologies for biowastes valorization (e.g. microwaves, ultrasound, ball-milling, etc.).
<table>
<thead>
<tr>
<th>PARTNER PROFILE</th>
<th>ROLE</th>
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<tbody>
<tr>
<td>Bio-Based Industry/Italy</td>
<td>Coordinator</td>
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<tr>
<td>Research Center/Italy</td>
<td>Technology Developer SPIRE Member</td>
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<tr>
<td>Research Center/Spain</td>
<td>Technology Developer SPIRE Member</td>
</tr>
<tr>
<td>SME/UK</td>
<td>Expert in Energy Efficiency and Exergy assessments. SPIRE Member</td>
</tr>
<tr>
<td>SME/France</td>
<td>Expert in Sustainability Assessments/Technical Coordination. SPIRE Member</td>
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<tr>
<td>SME/Germany</td>
<td>Expert in Business Models and Exploitation</td>
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## REQUIRED PARTNERS

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<thead>
<tr>
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<tbody>
<tr>
<td>SMEs/Industries</td>
<td>End-users of the final products that will be implemented in the food, cosmetic, medical and/or pharmaceutical industries</td>
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<td>SMEs/industries</td>
<td>Specialized in (i) developing high-quality natural food ingredients, (ii) drugs encapsulation and (iii) development of cosmetic and personal care products, being also able to test the quality of the final products.</td>
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<td>Poles / Clusters</td>
<td>Support in social acceptance studies of the final products (e.g. for instance to recruit people for focus groups).</td>
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Contact details:

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