Berrypom: Processing and application of berry pomace

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Background

Berry juice production: 20 - 30% press residues → undervalued by-product

Nutritional value

- High fibre content
- Source of phytochemicals
- Fats become available
Project outline

Partners

Germany

UK

Spain

Sweden

New Zealand

Processing & application of berry pomace
3 Reviews


Project outline

Literature work

Processing & extraction

• Chemical characterisation
• Technofunctional properties
• Fiber composition

Partners
Project outline

Literature work

Processing & extraction

Application in cereal-based products

- Dough systems
- Extruded snack food
- Pastry products
- Brittle bakery products

Partners

- Technische Universität Dresden
- University of Huddersfield
- Universitat Politècnica de València
- Lunds universitet
- Lincoln University
Project outline

Literature work

Processing & extraction

Application in cereal-based products

In-depth characterisation

- Microstructure
- In-vitro digestibility
- Sensory properties
- Phytochemical stability during processing

Partners

[Logos of partner universities]

Processing & application of berry pomace
Project outline

- Literature work
- Processing & extraction
- Application in cereal-based products
- In-depth characterisation
- Environmental management
  - Life cycle cost analysis
  - Carbon footprinting

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Project outline

Literature work

Processing & extraction

Application in cereal-based products

In-depth characterisation

Environmental management

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Processing & application of berry pomace
Impact of temperature/time regime on polyphenol content

- High amount of polyphenolic compounds
- Distinct degradation among varieties
Lab vs. industrial scale

Problem seeds $\rightarrow$ bimodal distribution

<table>
<thead>
<tr>
<th></th>
<th>hot air drying + impact mill</th>
<th>simultan. drying + grinding</th>
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<tbody>
<tr>
<td>Particle size</td>
<td>$\downarrow$</td>
<td>$\uparrow$</td>
</tr>
<tr>
<td>Fractionation</td>
<td>$\checkmark$</td>
<td>$(\checkmark)$</td>
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<td>Throughput</td>
<td>$\downarrow$</td>
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In-depth characterisation

Flour replacement up to 30% → high in dietary fiber

Bioactive compounds?

Simulation of heat treatment in applications

Powder & Matrix:
dry – in water – in oil

Temperature [°C]

Time [min]

100
150
200

10
20
30
In-depth characterisation

Flour replacement up to 30% \(\rightarrow\) high in dietary fiber

**Bioactive compounds?**

Simulation of heat treatment in applications

Powder & Matrix:
- dry – in water – in oil

Heat stability of black currant powder

- **Polyphenol content [mAU*min/g_DM]**
- **Temperature [°C]**
- **Time [min]**
Conclusion

- Solutions for large scale production
- Consumer acceptance
- Conservation of Polyphenols