TECHNISCHE UNIVERSITÄT DRESDEN

Phytoextract of sage cell cultures

MOTIVATION:

Sage contains various bioactive pharmaceutical ingredients that exhibit anti-bacterial and antifungal activity. Two interesting components are the triterpene acids oleanolic acid and ursolic acid, which have anti-oxidant and water-repellent effects. A biotechnologically produced phytoextract from sage cell cultures can be used in a variety of ways, for example in wood preservation, cosmetic products or as an odor inhibitor, thus replacing synthetic or environmentally harmful substances.

Sage *salvia fruticosa*

THIS IS SPECIAL ABOUT PHYTOECTRACT FROM SAGE CELLS:

- Ecological, plant based
- Odor- inhibiting
- Water repellent
- Anti-fungal
- Antioxidant
- No genetic engineering
- Pollutant-free
- Storage stable
- Long-term protection
- Renewable raw material

POTENTIAL USES:

The phytoextract can find versatile uses due to its many positive properties. Conceivable areas of application are:

- Wood preservative
- Paints
- preservative
- Cosmetic & pharmaceutical products
- Children's toys (harmless: DIN EN 71)

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Project **SchuPlaHolz** 2020-2022

Biobased protective agent from plant cell culture for wood-based materials

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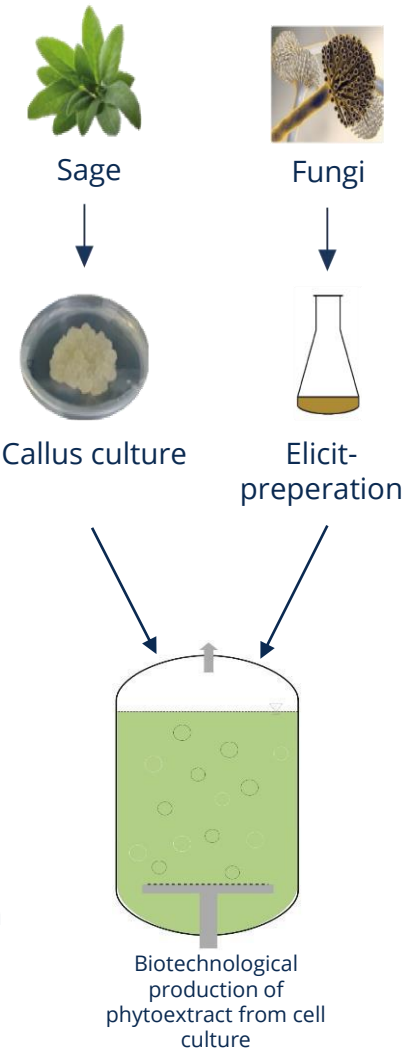
BIOTECHNOLOGICAL PROCESSING:

As a preparatory step, a tissue dressing (callus culture) is obtained from the sage plant. This is multiplied step by step in the bioreactor under controlled conditions. In a parallel process, a fungal culture is also cultivated and prepared under defined conditions. The finished fungal- culture-filtrate is added to the sage cells in the final cultivation stage, stimulating the sage to produce defense substances and thus increasing the yield of the cell extract (phytoextract). The final step involves cell disruption and separation of the phytoextract from the remaining substances by centrifugation and filtration.



Biotechnological production of phytoextract from cell culture

ADVANTAGE BIOTECHNOLOGY PROCESSING:

Instead of agricultural cultivation, the sage cells are cultivated in the bioreactor. This results in several advantages:

- **Defined production parameters**
  → controlled system
- **Good Manufacturing Practice**
  → suitable for pharmacy, cosmetics
- **Ecologial & sutainable**
  → renewable resource
  → no additional acreage required, no competition with forage plants, energie crops, food plants
- **Constant quality and quantity**
  → independent of environmental factors (e.g. climate, season, light, pests...)
- **Great yield**
  → the yield is significantly higher compared to agricultural cultivation

The novel manufacturing process produces a natural product with consistently high quality. This allows to reduce the use of synthetic and environmentally harmful substances.

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