OBTAINING POTENT ANTIOXIDANTS FROM MULBERRY CELL CULTURES

TECNOLOGÍA PATENTADA

DATOS DE CONTACTO:

Research Results Transfer Office-OTRI
University of Alicante
Tel.: +34 96 590 99 59
Email: areaempresas@ua.es
http://innoua.ua.es

RESUMEN

The *Plant Proteomics and Functional Genomics group* of the University of Alicante, in collaboration with the *Institute of Integrative Systems Biology* of the University of Valencia, has developed the technology of plant cell cultures of the genus *Morus* to obtain stilbenes. The innovation lies in the simultaneous use of two elicitor compounds to promote their production. With this technology, trans-resveratrol and trans-oxyresveratrol are obtained in high quantities, with the possibility of using them in the pharmaceutical, cosmetic and food industries thanks to their powerful antioxidant character. Companies interested in acquiring this technology for its commercial exploitation through patent licensing agreements are sought.

VENTAJAS Y ASPECTOS INNOVADORES

ADVANTAGES OF THE TECHNOLOGY

The developed method has the following **advantages**:

1) It is **more efficient** than current biotechnological methods.

2) It is carried out **in a single process**, which simplifies the production process.

3) The **accumulation** of t-resveratrol and t-oxyresveratrol is **mostly extracellular**.

4) The **extraction and purification process is simplified** (no need to break the plant cells and then remove the cellular remains).

5) It is possible to use the plant cells in suspension for **new t-resveratrol and t-oxysveratrol synthesis cycles**.

6) The **trans- forms** of both compounds (which are the biologically active forms, as opposed to the cis- isomers) are mainly generated.

7) **High amounts** of stilbenes are obtained:

- In the **red clone**:
  - **124 mg/L t-oxyresveratrol**.
  - 24 mg/L t-resveratrol.
- In the **white clone**:
  - **114 mg/L t-resveratrol**.
  - 81 mg/L de t-oxyresveratrol.

8) t-Oxyresveratrol and t-resveratrol **production is stable** and **independent of environmental and socio-economic factors**.

9) The **quality** of the final product is **improved**.

10) The process is **sustainable and environmentally friendly**.

11) The technology allows large quantities of stilbenes to be obtained at a **lower cost** than other similar techniques currently available on the market, which increases its **accessibility for different industrial applications**.

INNOVATIVE ASPECTS OF THE TECHNOLOGY

Surprisingly and unexpectedly, the **combined use of cyclodextrins and methyl jasmonate** in plant cell cultures of the genus *Morus* results in the production of two stilbenes not anticipated in the state of the art, namely t-resveratrol and, especially, t-oxyresveratrol.

The cumulative concentrations of both stilbenes are higher in the combined treatment than the sum of the individual treatments, hence the **synergistic effect** of both elicitors.

The **accumulation** of both stilbenes occurs mostly in the **extracellular** medium, which simplifies the extraction and purification process and reduces production costs.

The technology makes it possible to obtain **large quantities of t-resveratrol** and, above all, **t-oxyresveratrol**.

APLICACIONES DE LA OFERTA

This novel technology belongs to the field of **plant biotechnology**.

The main sectors of application are:

- Pharmaceutical.
- Cosmetics.
- Food.
- Nutraceutical.

COLABORACIÓN BUSCADA

Companies interested in acquiring this technology for **commercial exploitation** through **patent licensing** agreements are sought.