Universidad de Oviedo

ASTURIAS CAMPUS DE EXCELENCIA INTERNACIONAL | AD FUTURUM |

TECHNOLOGY OFFER

RECOMBINANT NUCLEIC ACID FOR THE PRODUCTION OF POLYPHENOLS

COMPETITIVE ADVANTAGES

✓ **Market**: this technology enables the production of a wide variety of bioactive products with applications in different sectors (health, food, agriculture, etc.).

✓ Products with **varied activity** depending on the molecule: cardioprotective, anti-inflammatory, antitumor, antioxidant, light-protective, etc.

✓ **Clean, simple and scalable biotechnological process**: unlike existing processes, our production system of these molecules is based on bacterial cell factories rather than on chemical synthesis.

PATENTS

ES patent applied.

In time to seek international patent extension.

TYPE OF COLLABORATION

Licence agreement.

INNOVATIVE ASPECTS

✓ The invention describes an innovative biological process that allows the production in bacteria of pure compounds of high pharmaceutical and food interest without generating racemic mixtures.

✓ It is produced from food-grade bacterial factories, which are also common in industrial processes of drug production (antibiotics, antitumor, etc.). It is a clean bioprocess.

✓ It is an industrially scalable process via fermenters, which would produce hundreds of thousands of litres in volume.

ABSTRACT

Polyphenols are bioactive compounds with antioxidant capacity of great interest in the field of health and prevention of functional and structural alterations of several diseases. In recent years, they have been attributed beneficial effects against the development of various diseases associated with increased cellular oxidation processes.

This invention protects the use of several patented gene constructions in the synthesis of polyphenols, particularly stilbenes, chalcones, flavanones, isoflavones, flavones, flavonols, dihydroflavonols, anthocyanidins and their derivatives. Using our technology, production in bacteria of more than 15 different molecules is permitted.

The utility of these compounds as protectors of human health (anti-inflammatory, antitumor, antiviral, antibacterial, and even insecticides for agricultural use) has stimulated research and development of new platforms for large-scale production because they are found in very low concentrations in the organisms that naturally contain them (plants) and chemical synthesis involve complex processes. These problems are solved by this invention.

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