Method for extraction of policosanols from industrial hemp and the mixture thereof

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KEYWORDS

□ SMART

DEVICE

□ DESIGN

AREA

Patent Type Patent for invention **Co-Ownership** Sapienza University of Rome □ REAGENT Chromaleont srl 50% □ MEASUREMENT

Inventors

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50%.

PHARMACEUTICAL

Industrial & Commercial Reference

Pharmaceutical (drugs with cholesterolemic activity), Nutraceutical (dietary supplements) and Cosmetic Industries (lipsticks).

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Time to Market

TRL3:Proof-of-Concept Demonstrated. Analytically and/or Experimentally.

Availability

Cession. Research. Development. Experimentation, Collaboration e Start-up.



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Fig. 1 Extraction process of policosanols from industrial hemp.



Nutraceutical Pharmaceutical Cosmeceutical

Fig. 2 Potential industrial application of obtained policosanol

Abstract

Policosanols are long chain aliphatic alcohols, with carbon chains typically in the range 20-36, with interesting biological activities. The attention on these phytochemicals is due to interesting health-promoting bioactivities, which include anti- cholesterolemic activities. Other bioactivities reported for policosanols include potential benefits in treating obesitv and diabetes. hypolipidemic activity and an antioxidative activity. The invention patent describes the extraction and characterization of wax policosanols from hemp inflorescence. The compounds can be obtained as a byproduct of cannabidiol extraction and were prepared by extraction of the free policosanol fraction and hydrolysis of the esterified policosanols in wax.

Publications

EN Montone, C.M., Aita, S.E., Cannazza, G., Cavaliere, C., Cerrato, A., Citti, C., Mondello, L., Piovesana, S., Laganà, A., Capriotti, A.L. Targeted and untargeted characterization of underivatized policosanols in hemp inflorescence by liquid chromatographyhigh resolution mass spectrometry (2021) Talanta, 235, art. no. 122778, DOI: 10.1016/j.talanta.2021.122778, IF (2020): 6.057.

Method for extraction of policosanols from industrial hemp and the mixture thereof

Technical Description

The invention patent allows you to extract policosanols from industrial hemp, in particular from the waste produced from cannabidiol extraction process. Industrial inflorescence contains hemp policosanols, which are long-chain aliphatic alcohols, with carbon chains typically in the range 20-36. In this patent, it is possible to obtain a mixture of policosanols together with other phytocompounds or a purified fraction containing only high purity policosanols after a purification by silica column chromatography. The extraction of policosanols is based on a solvent extraction. winterization and saponification.



Fig. 3 Graphical representation of circular economy principle.

Technologies & Advantages

The present invention describes a further application of industrial hemp, with a considerable economic impact deriving from the recovery of nutraceutical compounds. Policosanols are obtained from wax which is a waste generated from the process necessary to extract cannabidiol. Given the growing demand and consequently production of cannabidiol, the wax represents a huge processing waste, as well as a high cost for its disposal. From the perspective of the principle of circular economv. the revalorization of industral waste is nowadays a hot topic. The described procedure allows you to obtain a mixture of phytocompounds containing policosanols or a purified fraction containing only high purity policosanols (99%) after a purification by silica column chromatography. Presently, the wax deriving from production of cannabidiol are used for the production of candles. Therefore, the production of compounds with higher added value is of the extreme importance in the field of nutraceuticals, pharmaceuticals

and cosmeceuticals.

Applications

Policosanols in are used various industrial such sectors. as pharmaceutical. nutraceuticals and cosmetics. In the field of pharmaceuticals and nutraceuticals. policosanols can reduce total cholesterol levels and increase endothelial functions compared to placebo treatment either alone or in combination with berberin and fermented red rice. Presently, the cosmetics industry uses octacosanol to impart structure to the apolar components of personal care products such as lipsticks, moisturizers, and sunscreens by organogelation technology.



Fig. 4 Percentage composition of non-saponificable fraction obtained by wax in the cannabidiol extraction process .



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