UNIONE EUROPEA
Fondo Sociale Europeo
Fondo Europeo di Sviluppo Regionale

Ministero dell'Istruzione, dell'Università e della Ricerca

PON RICERCA E INNOVAZIONE 2014 - 2020

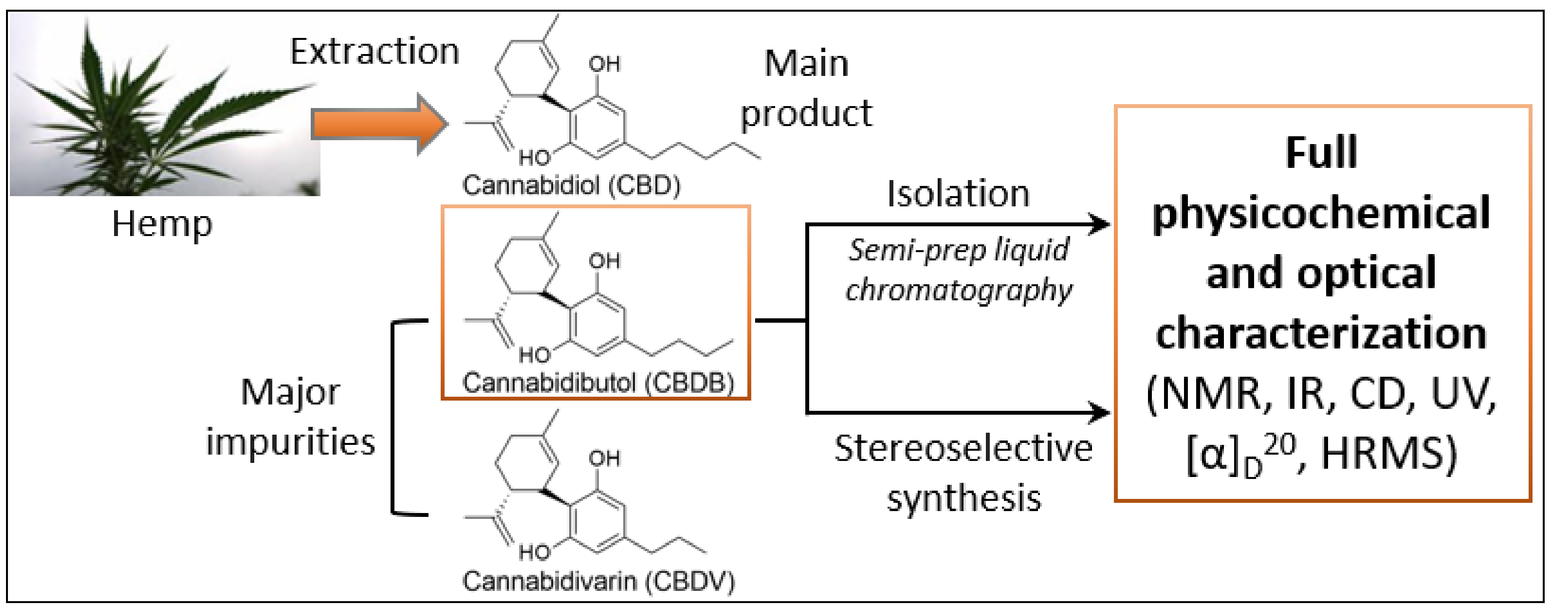
Progetto Codice ARS01_00668, finanziato dal Fondo Europeo di Sviluppo Regionale (FESR) nell'ambito del PON R&I 2017-2020 – Asse 2 – Azione II – OS 1.b).

UNIHEMP project: Isolation from hemp and characterization of *cannabidibutol*, the novel cannabidiol butyl analog

Cinzia Citti[a,b], Pasquale Linciano[a], Flavio Forni[a], Maria Angela Vandelli[a], Giuseppe Gigli[b], Aldo Laganà[b], Giuseppe Cannazza,[a,b] , Nicola Sicilia[c], Tiziana Valerio[c]

[a] *Department of Life Sciences, University of Modena and Reggio Emilia, Via Campi 103, 41125 Modena, Italy*
[b] *CNR NANOTEC, Campus Ecotekne of the University of Salento, Via Monteroni, 73100 Lecce, Italy*
[c] *DHITECH Distretto Tecnologico High -Tech S.c.a r.l., Via Monteroni, 73100 Lecce, Italy*

Cannabidiol (CBD), one of the two major active principles present in *Cannabis sativa,* is gaining great interest among the scientific community for its pharmaceutical, nutraceutical and cosmetic applications. CBD can be prepared either by chemical synthesis or extraction from *Cannabis sativa* (hemp). The latter is more convenient from several points of view, including environmental and economic, but mainly for the absence of harmful organic solvents generally employed in the chemical synthesis. Although CBD produced by hemp extraction is the most widely employed, it carries two major impurities. The first one is the already known cannabidivarin (CBDV), whereas the second one is supposed to be the butyl analog of CBD with a four-term alkyl side chain.

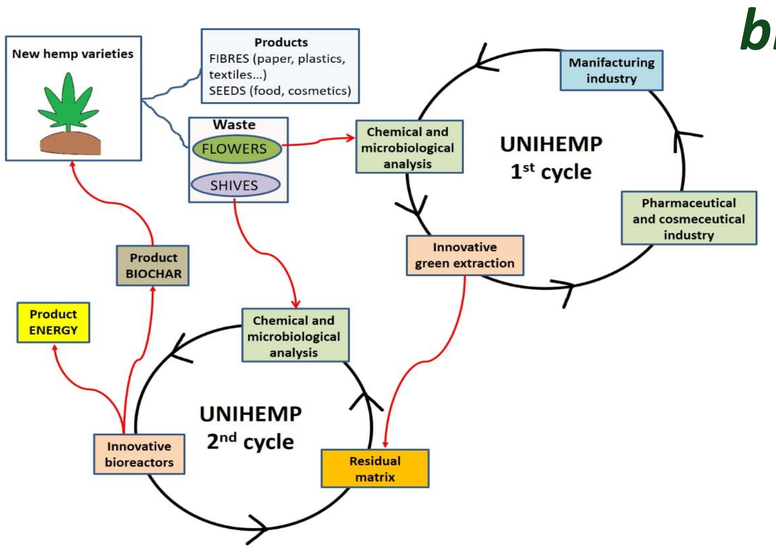


This previously unknown cannabinoid, thanks to the research activity of the partners of the project, may represent a potential target of extraction from hemp and a new active principle for cosmeceutical formulations. *In vitro* and *in vivo* investigations are ongoing to assess its pharmacological and toxicological profile.

Within the UNIHEMP project, the partners CNR NANOTEC and UNIMORE carried out the isolation by semi-preparative liquid chromatography and the unambiguous identification of this second impurity. A comprehensive spectroscopic characterization, including NMR, UV, IR, circular dichroism and high-resolution mass spectrometry (HRMS), was carried out and its absolute configuration assigned by stereoselective synthesis of the natural isomeric form. According to the International Nonproprietary Name, we suggested the name of *cannabidibutol* (CBDB) for this cannabinoid.

UNIHEMP
CANNABIS PROTECTIO

Use of iNdustrIal Hemp biomass for Energy and new biocheMicals Production



Partner

Dhitech Scarl, CNR-Nanotec;
Avantech Group Srl;
Ekuberg Pharma Srl;
CREA (Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria);
Manifatture Sigaro Toscano;
SECI Energia Spa;
Università degli Studi di Modena e Reggio Emilia

Goals

Creation of a technological platform for the exploitation of wastes deriving from hemp cultivation to be used as source for the production of new biochemicals for manufacturing, cosmaceutical and energy purposes.
The project aims to generate a circular aconomy around the hemp supply chain, thus establishing a new sustainable and low environmental impact industrial model.

Dhitech SCARL
DISTRETTO TECNOLOGICO HIGH TECH