

Review article

Specific features of cannabidiol metabolism and excretion during long-term consumption of cannabis

Mykola Shevchuk and Oles-Pylyp Hasiuk*

*Department of Pathological Anatomy and Forensic Medicine,
Danylo Halytsky Lviv National Medical University, Lviv 79010, Ukraine*

**Email: hasiukolespylyp@gmail.com*

Receipt: 03.12.2024

Revised: 25.01.25

Acceptance: 03.02.25

DOI:10.53552/ijmfmap.11.1.2025.41-55

License: CC BY-NC 4.0

Copyright: © The Author(s)

ABSTRACT

The purpose of this study was to characterize the key patterns of cannabidiol metabolism and elimination. To fulfil this purpose, the study employed the latest scientific sources for the last 5-6 years from authoritative scientometric databases and archives, using bibliographic and bibliosemantic research methods. Cannabidiol has considerable therapeutic potential in the treatment of neurodegenerative diseases and neuropsychiatric disorders. Due to its properties, cannabidiol can be effective in treating conditions such as Alzheimer's disease, Parkinson's disease, multiple sclerosis (especially in young people), post-traumatic stress disorder, schizophrenia, etc. However, apart from therapeutic effects, it is necessary to consider the principles of drug metabolism and elimination. This substance is absorbed in the gastrointestinal tract after oral administration. The percentage of cannabidiol absorbed depends on the form of intake (capsules, oils, or food) and can range within 6-20%. The metabolism of cannabidiol is a multi-stage and complex process involving absorption in the digestive tract, intensive metabolism in the liver under the influence of digestive enzymes and cytochrome P450, and subsequent excretion of metabolites through the bile into the intestines. Understanding these processes is important for the optimised use of cannabidiol for medical purposes, considering its bioavailability and possible interactions with other drugs. The metabolism of cannabidiol is largely dependent on isoenzymes, specifically CYP2C19 and CYP3A4, which oxidise cannabidiol to active and inactive metabolites such as 7-hydroxycannabidiol (7-OH-CBD). Additional enzymes, such as CYP1A1, CYP1A2, CYP2C9, and CYP2D6, are also involved in this process, but their contribution is less significant.

Keywords: Elimination, hepatobiliary system, law, narcotic substances, resistance,