Natural vs. Converted vs. Synthetic

Category	Natural Cannabinoids (from cannabis or hemp)	Converted Cannabinoids - ACbs (Chemically Converted Cannabinoids, Semi-synthetic, include Delta-8-THC3, Cannabinol (CBN))	Synthetic Cannabinoids – SCbs (including synthetic THC*) [10]
Definition	Means a phytocannabinoid that is created in detectable amounts in the plant *Cannabis sativa* L., and shall: A) only include phytocannabinoids and their precursor acid forms, B) not include any artificial cannabinoid and C) not include any synthetic cannabinoid. [4]	Means a chemical substance, created using at least one industrial process to convert a phytocannabinoid or other substance into a different compound, that mimics a phytocannabinoid, or interacts with the ECS.	Means a chemical substance that is not a natural cannabinoid, created using chemical synthesis, chemical modification, chemical conversion, in-vitro biosynthesis or bioconversion, that mimics a phytocannabinoid or interacts with the ECS.
Common Risks	**Mild and temporary:** short-term memory issues, dry mouth, drowsiness, increased appetite, occasional anxiety, over-intoxication, psychosis is rare at low-modest doses. [4]	**Mild-to-severe and possibly unpredictable:** anxiety, heart palpitations, toxic chemical exposure. [4]	**Severe and unpredictable**: toxic chemical exposure, extreme anxiety, paranoia, psychosis, seizures, hallucinations, possible long-term mental health damage, nausea, vomiting, suicidal ideation, renal failure and more[2,3,10].
Potential Benefits	Pain relief, neuroprotection, anxiety reduction, seizure control, anti-inflammatory, improved sleep, and more. [2]	Pain relief, improved sleep, anxiety relief. [2]	Minimal value due to impurities (risk outweigh benefits): mostly recreational use for euphoria or sedation. If clean, may provide similar benefits of THC. [10]
Recommended Dose / Serving	2.5–5 mg typically. Studies (e.g., Sativex™) show up to 20 mg/day generally well tolerated. Outliers may need higher doses. [2]	5-10 mg. Naive users should start with the lowest dose possible such as 2.5mg [2]	1–5 mg. Real doses often exceed labels, increasing overdose risk. Labeling rarely accurately warns of risks.
Psychosis Triggering Dose	Rare at 10–15 mg; effects subside as THC exits the system. [4]	Rare at up to 15 mg. [4]	Often reported at 10 mg or less; effects more severe and longer-lasting. [10]
The Nuance	Predictable, transient effects that resolve as metabolized.	Effects are slightly less potent than Delta-9-THC, impurities are the greatest concern.	More potent (2-100X), stronger binding, longer toxicity, higher risk of permanent brain impact[2]. SCbs produce toxicity not associated with THC. [10]
Public Health Concerns	Naturally occurring, studied, and safe if properly regulated.	Product impurities and poor labeling. [4]	Illicitly made, poorly labeled, may contain toxic and carcinogenic additives. [10]
Suggested Regulations	Allow free commerce with regulation for label requirements, quality assurance including lab testing, and age restrictions. [2, 4]	Require proper labeling, age restrictions and lab testing for impurities. [2,4]	Do not allow. Enforce the ban.

Includes JWH compounds, THCP, other CP compounds, K2, Spice. Does not include the FDA approved drugs Marinol, Cesamet, Syndros.

Source: Compiled by Nishi Whiteley, COO and reviewed by Ethan Russo, MD, and CEO of CReDO Science. www.credo-science.com

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