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**File: ■ Cannabis (*Cannabis sativa*, Cannabaceae)
■ Claims and Misconceptions**

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RE: Rectifying Cannabidiol Claims and Misconceptions

Russo EB. Cannabidiol claims and misconceptions. *Trends Pharmacol Sci.* March 2017;38(3):198-201.

Cannabidiol (CBD), a 21-carbon terpenophenolic compound found only in cannabis (*Cannabis sativa*, Cannabaceae), is attracting increasing interest as "a pharmacological agent of wondrous diversity," with analgesic, anti-inflammatory, antioxidant, antiemetic, anxiolytic, antipsychotic, anticonvulsant, and cytotoxic (to malignant cell lines) effects mediated through several signaling channels. Unlike many plant-derived compounds that attract researchers' attention, CBD, largely due to cannabis' continuing illegal status under US law, has also attracted media and lay interest and "an alarming number of mischaracterizations." Russo takes these on in this "Forum" report.

"*CBD is non-psychoactive and non-psychotropic.*" Russo draws the distinction between CBD's lack of intoxicating effects and its benefits in anxiety, schizophrenia, addiction, and perhaps depression—if it were not psychoactive, it could not exert these benefits. He adds, "More accurately, CBD should be preferably labeled as 'non-intoxicating', and lacking associated reinforcement, craving, compulsive use, etc., that would indicate a significant drug abuse liability."

"*CBD is sedating.*" On the contrary, low to moderate doses are alerting, able to counteract the sedative effects of the better-known cannabinoid, tetrahydrocannabinol (THC). Epidiolex® (GW Pharmaceuticals; Cambridge, United Kingdom), an investigational new drug with CBD, traces of THC, other cannabinoids, and terpenoids, has produced sedation under conditions of polypharmacy when used at very high doses for intractable epilepsy.

"*CBD is a CB₁ antagonist like rimonabant.*" Rimonabant or SR141617, a synthetic cannabinoid receptor type 1 (CB₁) sold briefly in Europe as Acomplia® (Sanofi-Aventis; Gentilly, France), was withdrawn after numerous severe adverse event reports. Its failure has affected other drug development programs. However, CBD and tetrahydrocannabivarin, yet another cannabinoid, are neutral antagonists at CB₁. CBD has no rimonabant-like effects.

"*CBD is legal in all 50 states.*" Though unregulated in most nations, in the United States, CBD remains on the Schedule I of forbidden drugs, along with all other cannabinoids. [Note: However, the National Organization for the Reform of Marijuana Laws (NORML)

website showed, on August 22, 2017, that 16 states have CBD-specific marijuana laws, and 28 more (plus Washington, D.C.) have medical cannabis ("medical marijuana") legislation that would include CBD.] Commerce in CBD is "rampant" in storefronts and online, a situation "tolerated" by federal authorities. Nonetheless, claims that CBD extraction from hemp plant refuse is legal are false. Extraction could concentrate pesticides and other toxins, including heavy metals, and furthermore is specifically illegal under the Controlled Substances Act of 1970.

"*CBD turns into THC in the body.*" Although it is possible to cause an isomerization reaction by prolonged exposure of CBD to "simulated" gastric acid, with THC as an end product, there is no evidence that this occurs in vivo in humans and no known enzyme(s) catalyzes such a change; additionally, specific pharmacokinetic and metabolic evidence refute that such a change occurs in humans.

As CBD makes its way to becoming an approved pharmaceutical agent in intractable epilepsy, it is time for the myths about it and other cannabinoids to be dispelled, along with cannabis' lingering status as a Schedule I substance of no medical value.

—*Mariann Garner-Wizard*

The American Botanical Council has chosen not to reprint the original article.