Tetrahydrocannabivarin (THCV)

Introduction and selected scientific references

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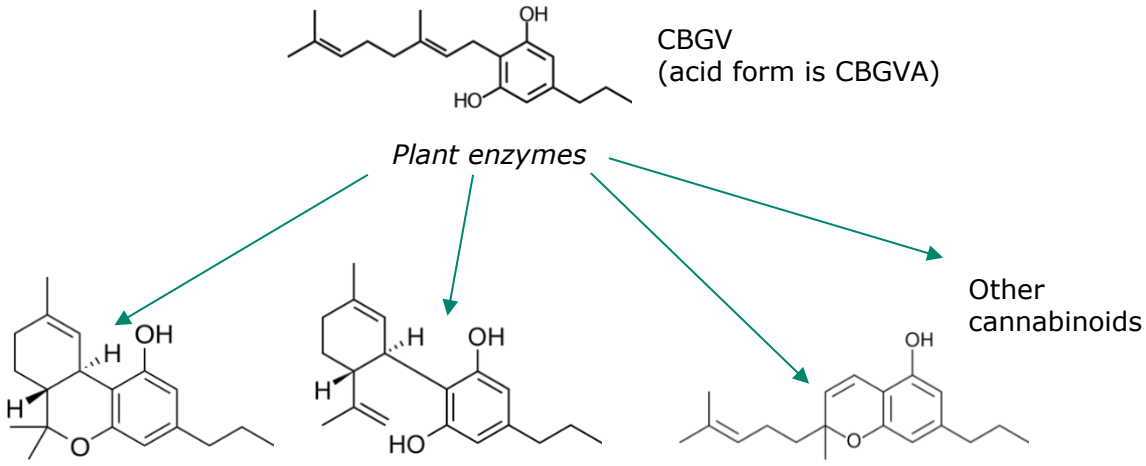
Introduction

THCV is a minor cannabinoid found in trace quantities in Cannabis plants. Unlike the major cannabinoids, it is formed not from CBGA, but from CBGVA. CBGVA is chemically similar to CBGA except that it has a three carbon side chain rather than a five carbon side chain. Although structurally similar to THC, THCV is functionally different, without the strong psychotropic properties of THC.



Plant cannabinoids are naturally produced in the acid form. Prior to consumption, they are typically converted into their better-known neutral form by heating. In this way, THCV is made from THCVA.

Potential benefits

There is growing interest in the study of THCV for a variety of therapeutic uses. Some of the areas of investigations are summarized below:

1. Appetite suppression;
2. Diabetes;
3. Inflammation;
4. Epilepsy;
5. Parkinson's disease;
6. Nicotine addiction;
7. Nausea;
8. Neuroprotection;
9. COVID.

Scientific literature

Subject	Quotation	Ref.
Appetite suppression	"[W]e found that THCV and rimonabant **reduced weight gain**, and this effect was in part mediated by GPR55."	1
	"[T]he effects of Delta9-THCV, which behaves like a CB1 antagonist, were also determined in free-feeding animals…Delta9-THCV is a novel compound with **hypophagic** properties and a potential treatment for obesity."	2
	"Our results suggest that THCV and CBD might be used as new therapeutic agents for the pharmacological treatment of **obesity**- and metabolic syndrome-related NAFLD/**hepatosteatosis** [non-alcoholic fatty liver disease]."	3
	"Our findings are the first to show that treatment with the CB1 neutral antagonist tetrahydrocannabivarin increases neural responding to rewarding and aversive stimuli. This effect profile suggests therapeutic activity in **obesity**, perhaps with a lowered risk of depressive side effects."	4
Diabetes	"Compared with placebo, THCV significantly decreased fasting plasma glucose…and improved pancreatic β-cell function…THCV could represent a new therapeutic agent in **glycemic control** in subjects with type 2 diabetes."	5
	"THCV is a new potential treatment against obesity-associated **glucose intolerance** with pharmacology different from that of CB1 inverse agonists/antagonists."	6
	"[T]he uniquely diverse properties of THCV provide **neuroprotection, appetite suppression, glycemic control**, and reduced side effects, etc.; therefore, making it a potential priority candidate for the development of clinically useful therapies in the future. Hopefully, THCV could provide an optional platform for the treatment of life-threatening diseases."	7
Inflammation	"THCV can activate CB_2 receptors *in vitro* and decrease signs of **inflammation** and inflammatory pain in mice partly *via* CB_1 and/or CB_2 receptor activation."	8
Epilepsy	"These data demonstrate that Δ^9-THCV exerts **antiepileptiform** and anticonvulsant properties, actions that are consistent with a CB1 receptor-mediated mechanism and suggest possible therapeutic application in the treatment of pathophysiologic hyperexcitability states."	9

Subject	Quotation	Ref.
Parkinson's disease	"Given its antioxidant properties and its ability to activate CB(2) but to block CB(1) receptors, Δ(9)-THCV has a promising pharmacological profile for delaying disease progression in PD and also for ameliorating **parkinsonian symptoms**."	10
	"[O]ur data support the **anti-dyskinetic** potential of Δ^9-THCV, both to delay the occurrence and to attenuate the magnitude of dyskinetic signs. Although further studies are clearly required to determine the clinical significance of these data in humans, the results nevertheless situate Δ^9-THCV in a promising position for developing a cannabinoid-based therapy for patients with PD."	11
Nicotine addiction	"We conclude that Δ^8 -THCV may have therapeutic potential for the treatment of **nicotine dependence**. We also suggest that tetrahydrocannabivarins should be tested for possible anti-addiction efficacy in a broader range of preclinical animal models, against other addictive drugs, and eventually in humans."	12
Nausea	"[C]annabinoid 1 (CB1) receptor inverse agonists/antagonists… produce nausea and potentiate toxin-induced nausea by inverse agonism… The pattern of findings indicates that neither THCV nor CBDV produced a behavioral profile characteristic of CB1 receptor inverse agonists. As well, these compounds may have therapeutic potential in reducing **nausea**."	13
Neuroprotection	"In conclusion, entourage effect of CBD and THCV combination against PIPN appears to **protect neurons** in mice by modulating 5HT1A and CB1 receptors, respectively."	14
Covid-19	"This study intended to examine the anti-inflammatory activity of cannabis on immune response markers associated with coronavirus disease 2019 (**COVID-19**) inflammation…To conclude, treatment with cannabis compounds CBD, CBG, and THCV may have clinical value in reducing cytokine secretion and ACE2 expression in lung epithelia cells."	15

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