

Marijuana (*Cannabis indica*)

Shivani Kashyap*

Department of Biotechnology, Meerut Institute of Engineering and Technology, Meerut, Uttar Pradesh, India

Review Article

Received: 13/09/2016

Revised: 17/09/2016

Accepted: 20/09/2016

*For Correspondence

Shivani Kashyap, Department of Biotechnology, Meerut Institute of Engineering and Technology, Meerut, Uttar Pradesh, India, Tel: +918004774540

E-mail:

shivanikashyap5661149@yahoo.com

Keywords: Cocaine, Narcotic drugs, Psychotropic

ABSTRACT

Compared to any other thing in life people first prefers mental happiness than physical ones. But, those who fail to accomplish or to reach their mental balance levels get into this kind of stuff like marijuana, Ayahuasca, Heroin, Opium or Cocaine like thingies. They are classified under NDPS category i.e., Narcotic Drugs and Psychotropic Substances. They are the substances that are totally prohibited and are illegal. These substances are highly psychoactive and psychotropic in nature.

INTRODUCTION

In the late 1980s scientists found a receptor for THC and THC-related chemicals in the brains of specific warm blooded animals, including people. This finding demonstrated that the cerebrum normally creates a THC-like substance that may play out a portion of the same capacities that THC does. Such a substance along these lines was found and named anandamide, from "ananda", the Sanskrit word for rapture. At the point when weed is smoked, the blood supply of the lungs retain the THC. The blood then moves to the heart where it builds the heart rate. In the event that the weed is eaten, less THC gets to the cerebrum and takes more time to arrive. The measure of THC in the body would be less for the measure of weed eaten, be that as it may, since it takes more time to work, clients are prone to expend more pot than they would ordinarily smoke. Large amounts of THC can bring about drug like encounters that smokers are less inclined to feel (**Figure 1**)^[1-25].

Effects of Marijuana addiction

- Euphoria.
- Relaxation.
- Drowsiness.
- Altered sense of time.
- Impaired memory.
- Slowed reflexes and impaired motor skills.
- Bloodshot eyes.
- Increased appetite.
- Dry mouth.
- Increased heart rate.
- Cognitive impairments.
- Paranoia

Synthesis

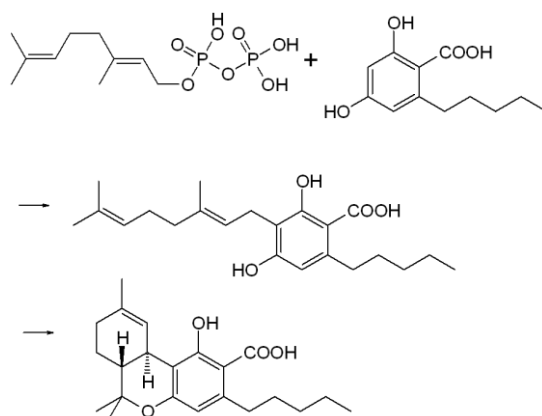


Figure 1. Synthesis of Marijuana (*Cannabis indica*).

So far as is known right now these isomers have in a general sense the same as quality (weight-for-weight), be that as it may it is likely there may be differentiations in the experience made undifferentiated from the change when hashish is eaten as opposed to smoked. Isomers A and B are found in standard hashish while THC-C is a built THC which has been generally looked into in attempts to set up which parts of the molecule are pivotal to stimulating development (see Adams' papers). With everything taken into account it has been shown that changes of the iota bring about diminishing of activity. Regardless, by changing the alkyl bundle on the right-hand ring (above, n-amyl, made out of five carbon particles in a straight chain) it has been possible to convey THC-C varieties with colossally extended power and term of effect. The variety depicted here as THC-V is at any rate as extreme as LSD (estimation 100-millionths gram) [26-50].

Course of action of five of the most charming of the THC-C analogs differentiating in the alkyl side chain (relegated THC-II, THC-III, THC-IV, THC-V, THC-VI) is delineated in this paper. Note that the looking at alkyl-bundle varieties in the THC-An and THC-B course of action can be organized essentially by adjusting the last development reaction. These materials have not been represented in the written work, yet rather there is inspiration to trust that they have at any rate proportionate activity.

THC-A's can be successfully isomerized-to THC-B's by the method for Mechoulam and Gaoni (J.A.C.S. 90, page 2420, 1968), using p-toluene sulphonic destructive as a piece of verging on quantitative yield [51-75].

The unions of THC-A, THC-B, or THC-C are all in perspective of the development of olivetol (5-(n-amyl)-resorcinol) with a second portion which shapes the left-hand and center ring of the THC molecule. THC-An or THC-B are gotten from olivetol and one of the going with; citral, (-)- verbenol, or (+)- p-2,8-menthadien-2-ol. THC-C is gotten from olivetol and (-)- 2-carbethoxy-5-methylcyclohexane. The varieties in each of the three course of action are procured by supplanting olivetol with a 5-(alkyl)- resorcinol in which the alkyl social event is balanced from n-amyl to one of the going with;

- THC: n-amyl
- THC-II: n-hexyl
- THC-III: 1'- methyl-octyl
- THC-IV: 1'- methyl-nonyl
- THC-V: 1',2'- dimethyl-heptyl
- THC-VI: 1',2'- dimethyl-octyl

The representation given here is for the course of action of 5-(1',2'- dimethyl-heptyl)- resorcinol, the olivetol straightforward required for THC-V. While get prepared THC itself, or the variety THC-II, the union is to some degree shorter, due to the way that the methyl-cluster side chain need not be incorporated [76-100].

CONCLUSION

Interminable use does not set up physical dependence, nor, upon withdrawal, does the general customer persevere through convincing physical misery, (for instance, that associated with sedatives), however its usage may be rationally habituating. Since THC stays in the body, it has been found to affect the influence scholarly limits

(numbering memory) up to 48 hours in the wake of smoking. Regardless, there is no verification that these effects last over two days. Interminable cannabis smokers can experience lung issues and all things considered don't convey as much twist stream as nonsmokers do.

REFERENCES

1. Liu Q. Medical Marijuana-opportunities and Challenges. *Biochem Pharmacol (Los Angel)*. 2016;5:e182.
2. Kandaswamy R. The Truth about Using Medical Marijuana and Cannabis in Treating Autism. *Autism Open Access*. 2016;6:e138.
3. Beech RD. Medical Marijuana: The Pitfalls and the Pendulum. *J Addict Res Ther*. 2015;6:e132.
4. Stone MH. Marijuana and Psychosis: The Effects of Adolescent Abuse of Marijuana and other Drugs in a Group of Forensic Psychiatric Patients. *J Child Adolesc Behav*. 2015;3:188.
5. Hatcharda T, et al. Marijuana Use Impacts Cognitive Interference: An fMRI Investigation in Young Adults Performing the Counting Stroop Task. *J Addict Res Ther*. 2014;5:197.
6. Míguez-Burbano MJ, et al. Thrombocytopenia, Liquor Use and Marijuana are Associated with Non-invasive Markers of Liver Fibrosis in People Living with HIV. *J Alcohol Drug Depend*. 2014;2:168.
7. McCormick MA and Shekhar A. Review of Marijuana Use in the Adolescent Population and Implications of its Legalization in the United States. *J Drug Metab Toxicol*. 2014;5:165.
8. Sneider JT, et al. A Review of Magnetic Resonance Spectroscopy Studies in Marijuana using Adolescents and Adults. *J Addict Res Ther*. 2013;S4:010.
9. Mashhoon Y, et al. Lower Left Thalamic Myo-Inositol Levels Associated with Greater Cognitive Impulsivity in Marijuana-Dependent Young Men: Preliminary Spectroscopic Evidence at 4T. *J Addict Res Ther*. 2013.S4:009.
10. Beatty JR, et al. Prevalence and Perceived Financial Costs of Marijuana versus Tobacco use among Urban Low-Income Pregnant Women. *J Addict Res Ther*. 2012;3:135.
11. Hiranita T. DAT Conformation Does Not Predict the Ability of Atypical Dopamine Uptake Inhibitors to Substitute for Cocaine. *J Alcohol Drug Depend*. 2016;4:e132.
12. Contia CL, et al. Dorsolateral Prefrontal Cortex Activity and Neuromodulation in Crack-Cocaine Dependents during Early Abstinence. *J Neurol Neurophysiol*. 2016;7:374.
13. Venkiteswaran K, et al. Commentary on - Human Embryonic Retinal Pigment Epithelial (Rpe) Cell Transplants for Chronic Refractory Cocaine Addiction. *Health Care: Current Reviews*. 2016;4:165.
14. Appavu R (2016) Nanovaccine Development for Cocaine Addiction: Immune Response and Brain Behaviour. *J Vaccines Vaccin* 7:313.
15. Sordi AO, et al. Childhood Trauma and Resilience: Vulnerabilities to Develop Crack/Cocaine Dependence. *J Alcohol Drug Depend*. 2015;3:227.
16. Dana K, et al. Rapid Analysis of Cocaine in Saliva by Surface-Enhanced Raman Spectroscopy. *J Anal Bioanal Tech*. 2015;6:289.
17. Hiranita T and Collins GT. Differential Roles for Dopamine D1-Like and D2-Like Receptors in Mediating the Reinforcing Effects of Cocaine: Convergent Evidence from Pharmacological and Genetic Studies. *J Alcohol Drug Depend*. 2015;3:e124.
18. Arora S, et al. Cocaine Use and Subclinical Coronary Artery Disease in Caucasians. *J Clin Exp Cardiol*. 2015;6:386.
19. Kassas I, et al. ST Elevation Myocardial Infarction due to Cocaine Induced Coronary Vasospasm. *J Cardiovasc Dis Diagn*. 2015;3:i102.
20. Sun WL, et al. Acute Cocaine Differentially Induces PKA Phosphorylation Substrates in Male and Female Rats. *J Addict Res Ther*. 2015;6:236.
21. Schütz CG. High Dose Stimulant Substitution for the Treatment of Cocaine and Crystal Meth Use Disorders. *J Addict Res Ther*. 2015;6:e131.
22. Lane SD, et al. Comparison of Caffeine and d-amphetamine in Cocaine-Dependent Subjects: Differential Outcomes on Subjective and Cardiovascular Effects, Reward Learning, and Salivary Paraxanthine. *J Addict Res Ther*. 2014;5:176.
23. Roy E, et al. Psychological Distress Increases Needle Sharing among Cocaine users: Results from the COSMO Study. *J Addict Res Ther*. 2014;S10:003.

24. Ray S, et al. Enhanced Cue Reactivity to Cocaine Cues in Non-Treatment Seeking Cocaine Smokers. *J Alcohol Drug Depend.* 2014;2:169.
25. Nejtek VA. Diffusion Tensor Imaging in Bipolar Disorder with Cocaine Dependence vs. a Healthy Control: Preliminary Findings. *Brain Disord Ther.* 2014;3:142.
26. Asha. CXR of Pneumomediastinum and Subcutaneous Emphysema Following Cocaine 'Snorting'. *Emerg Med (Los Angel).* 2015;5:i104.
27. Macdonald S, et al. Factors Related to Simultaneous Cocaine and Alcohol Use for Clients in Treatment. *J Alcohol Drug Depend.* 2015;3:193.
28. Vuppala PK and Vangara KK. Novel Treatment Strategies for Cocaine and Opioid Abuse. *J Bioequiv Availab.* 2014;6:e48.
29. O'Connor G, et al. Dangers of Cocaine Ingestion in MELAS Syndrome. *Emergency Med.* 2013;3:145.
30. Yang HJ, et al. The Anticonvulsant Tiagabine Inhibits Cocaine's Rewarding Effects, but has No Effect on Reinstatement of Cocaine-Seeking Behavior in Rats. *Biochem Pharmacol (Los Angel).* 2013;S1:005.
31. Crits-Christoph P, et al. Measuring Outcome in the Treatment of Cocaine Dependence. *J Alcoholism Drug Depend.* 2013;1:108.
32. Ray S. Neurocognitive Mechanisms in Cocaine Users. *J Alcoholism Drug Depend.* 2013;1:e102.
33. Perez G, et al. Peptides Binding Cocaine: A Strategy to Design Biomimetic Receptors. *J Proteomics Bioinform.* 2013;6:015-022.
34. Malek A. Effects of Prenatal Cocaine Exposure on Human Pregnancy and Postpartum. *Pharmaceut Anal Acta.* 2012;3:191.
35. Ismael F and Baltieri DA. Role of Two Clusters of Cocaine-Dependent Outpatients in Treatment Retention. *J Addict Res Ther.* 2012;3:136.
36. Ray S. Cocaine, Appetitive Memory and Neural Connectivity. *J Clinic Toxicol.* 2012;S7:003.
37. Lane SD, et al. Cardiovascular and Subjective Effects of the Novel Adenosine A2A Receptor Antagonist SYN115 in Cocaine Dependent Individuals. *J Addict Res Ther.* 2012;S1:009.
38. Ash BL and Djouma E. Galanin Receptors as Pharmacological Targets in the Treatment of Addiction. *J Addict Res Ther.* 2011;S4:003.
39. Mohammad KA, et al. Crack in Iran: is it Really Cocaine? *J Addict Res Ther.* 2011;2:107.
40. Haile CN, et al. Methamphetamine Cured my Cocaine Addiction. *J Addict Res Ther.* 2013;1:103.
41. Demarie D, et al. Long QT Syndrome (LQTS) in Opiate, Cocaine and Alcohol Addiction, with HIV+ / HCV+ Co-Infection in Antiretroviral Therapy (HAART). *J Addict Res Ther.* 2011;2:114.
42. Verma KL, et al. Analysis and Detection of Precursor Chemicals Used in Preparation of Narcotic Drugs and Psychotropic Substances-A Forensic Perspective. *J Forensic Res.* 2015;6:274
43. Stabnikov PA and Babailov SP. A Change of the Gravitational Interaction on the Galactic Distances. *Astrobiol Outreach.* 2015;3:137.
44. Rossetti I. Flow Chemistry: New Concepts from Batch to Continuous Organic Chemistry. *Ind Chem.* 2016;2:e102.
45. Heng Q and Liu W. Thiopeptide Antibiotics act on both Host and Microbe to Deliver Double Punch on Mycobacterial Infection. *Mycobact Dis.* 2016;6:203.
46. Varol M. The Importance of Metal-Based Drugs in Medicinal Inorganic Chemistry to Improve Life Quality of Patients. *J App Pharm.* 2016;8:e107.
47. Zinchenko AA, et al. Immunogenic and Protective Properties of Recombinant Proteins Based on Meningococcal Iga1 Protease. *J Meningitis.* 2015;1:102.
48. Zhang JT, et al. Mass Spectrometry: Insightful Window for Organic Chemistry. *Organic Chem Curr Res.* 2012;1:e116.
49. Lan W and Cao C. Studies on DNA Phosphorothioation Modification: Chances and Challenges. *Organic Chem Curr Res.* 2012;1:e115.
50. Gambino D. Metal-Organic Frameworks in Nanotherapeutics: Development of Novel Drug Nanocarriers for Conventional and Nuclear Oncology. *J Nanomed Biotherapeut Discov.* 2012;2:e120.
51. Ololade ZS, et al. Recovered Secondary Metabolites of Post-Hydrodistilled *Callitris columellaris* Leaf and their Free Radical Scavenging Potentials. *Organic Chem Curr Res.* 2013;2:115.
52. Brett AS and McCullough LB. Addressing requests by patients for non-beneficial interventions. *JAMA* 2012;307:149-150.

53. Aldington S, et al. Cannabis use and cancer of the head and neck: case-control study. *Otolaryngol Head Neck Surg* 2008;138:374-380.
54. Pletcher MJ, et al. Association between marijuana exposure and pulmonary function over 20 years. *JAMA* 2012;307:173-181.
55. Wade DT, et al. Meta-analysis of the efficacy and safety of Sativex (nabiximols), on spasticity in people with multiple sclerosis. *Mult Scler* 2010;16:707-714.
56. Hazekamp A and Grotenhermen F. Review of clinical studies with cannabis and cannabinoids 2005-2009. *Cannabinoids* 2010;5:1-21
57. Zajicek JP and Apostu VI. Role of cannabinoids in multiple sclerosis. *CNS Drugs* 2011;25:187-201.
58. Rahn EJ and Hohmann AG. Cannabinoids as pharmacotherapies for neuropathic pain: from the bench to the bedside. *Neurotherapeutics* 2009;6:713-737
59. Nunberg H, et al. An analysis of applicants presenting to a medical marijuana specialty practice in California. *Journal of Drug Policy Analysis* 2011;4:1-16.
60. Colorado Department of Public Health and Environment: The Colorado Medical Marijuana Registry: Statistics. Jan 2012.
61. National Research Council: Marijuana and Medicine: Assessing the Science Base. Washington, DC, National Academy Press, 1999.
62. Budney AJ and Moore BA. Development and consequences of cannabis dependence. *J Clin Pharmacol* 2002;42:28S-33S.
63. Budney AJ, et al. Review of the validity and significance of cannabis withdrawal syndrome. *Am J Psychiatry* 2004;161:1967-1977.
64. Haney M. The marijuana withdrawal syndrome: diagnosis and treatment. *Curr Psychiatry Rep* 2005;7:360-366.
65. Moore BA and Budney AJ. Relapse in outpatient treatment for marijuana dependence. *J Subst Abuse Treat* 2003;25:85-89.
66. Cerda M, et al. Medical marijuana laws in 50 states: investigating the relationship between state legalization of medical marijuana and marijuana use, abuse, and dependence. *Drug Alcohol Depend* 2011;120:22-27.
67. Asbridge M, et al. Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *BMJ* 2012;344:e536.
68. Moore TH, et al. Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. *Lancet* 2007;370:319-328.
69. D'Sousa DC. Cannabinoids and psychosis. *Int Rev Neurobiol* 2007;78:849-863
70. Arseneault L, et al. Causal association between cannabis and psychosis: examination of the evidence. *Br J Psychiatry* 2004;184:110-117.
71. Di Forti M, et al. High-potency cannabis and the risk of psychosis. *Br J Psychiatry* 2009;195:488-491.
72. Paparelli A, et al. Drug-induced psychosis: how to avoid star gazing in schizophrenia research by looking at more obvious sources of light. *Front Behav Neurosci* 2011;5:1.
73. Grant I. Medical marijuana: clearing away the smoke. *Open Neurol J* 2012;6:18-25.
74. Bostwick JM. Blurred boundaries: the therapeutics and politics of medical marijuana. *Mayo Clin Proc* 2012;87:172-186.
75. Mechoulam R. Cannabis – a valuable drug that deserves better treatment. *Mayo Clin Proc* 2012;87:107-109.
76. Nussbaum AM, et al. “But my doctor recommended pot”: medical marijuana and the physician-patient relationship. *J Gen Intern Med* 2011;26:1364-1367.
77. Bowles DW, et al. The intersection between cannabis and cancer in the United States. *Crit Rev Oncol Hematol* 2012;83:1-10.
78. Kleber JD and DuPont RL. Physicians and medical marijuana. *Am J Psychiatry* 2012;169:564-568.
79. McPartland JM and Pruitt PL. Medical marijuana and its use by the immunocompromised. *Altern Ther Health Med* 1997;3:39-45.
80. Battistella G, et al. Weed or wheel! FMRI, behavioural, and toxicological investigations of how cannabis smoking affects skills necessary for driving. *PLoS One* 2013;8:e52545-e52545.
81. Henstridge CM. Off-target cannabinoid effects mediated by GPR55. *Pharmacology* 2012;89:179-187.
82. Sharir H and Abood ME. Pharmacological characterization of GPR55, a putative cannabinoid receptor. *Pharmacol Ther* 2010;126:301-313.

83. Moreira FA, et al. Central side-effects of therapies based on CB1 cannabinoid receptor agonists and antagonists: focus on anxiety and depression. *Best Pract Res Clin Endocrinol Metab* 2009;23:133-144.
84. Irvin W Jr, et al. Symptom management in metastatic breast cancer. *Oncologist* 2011;16:1203-1214.
85. Lown B. *The lost art of healing: practicing compassion in medicine*. Boston: Houghton Mifflin, 1996.
86. De Alwis D, et al. ADHD symptoms, autistic traits, and substance use and misuse in adult Australian twins. *J Stud Alcohol Drugs*. 2014;75:211-221.
87. Crean RD, et al. An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions. *J Addict Med*. 2011;5:1-8.
88. Medina KL, et al. Neuropsychological functioning in adolescent marijuana users: subtle deficits detectable after a month of abstinence. *J Int Neuropsychol Soc*. 2007;13:807-820.
89. Asbridge M, et al. Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *BMJ*. 2012;344:e536.
90. Barkley RA, et al. Motor vehicle driving competencies and risks in teens and young adults with attention deficit hyperactivity disorder. *Pediatrics*. 1996;98:1089-1095.
91. Whitehill JM, et al. Marijuana-using drivers, alcohol-using drivers, and their passengers: prevalence and risk factors among underage college students. *JAMA Pediatr*. 2014;168:618-624.
92. Meier MH, et al. Persistent cannabis users show neuropsychological decline from childhood to midlife. *Proc Natl Acad Sci USA*. 2012;109:E2657-E2664.
93. Moore TH, et al. Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. *Lancet*. 2007;370:319-328.
94. Horwood LJ, et al. Cannabis and depression: an integrative data analysis of four Australasian cohorts. *Drug Alcohol Depend*. 2012;126:369-378.
95. Degenhardt L, et al. The persistence of the association between adolescent cannabis use and common mental disorders into young adulthood. *Addiction*. 2013;108:124-133.
96. Galve-Roperh I, et al. The endocannabinoid system and the regulation of neural development: potential implications in psychiatric disorders. *Eur Arch Psychiatry Clin Neurosci*. 2009;259:371-382.
97. Schneider M. Puberty as a highly vulnerable developmental period for the consequences of cannabis exposure. *Addict Biol*. 2008;13:253-263.
98. Busquets-Garcia A, et al. New insights into the molecular pathophysiology of fragile X syndrome and therapeutic perspectives from the animal model. *Int J Biochem Cell Biol*. 2014;53:121-126.
99. Busquets-Garcia A, et al. Targeting the endocannabinoid system in the treatment of fragile X syndrome. *Nat Med*. 2013;19:603-607.
100. Jung KM, et al. Uncoupling of the endocannabinoid signalling complex in a mouse model of fragile X syndrome. *Nat Commun*. 2012;3:1080.