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COMMENTS

MARIJUANA AS A SCHEDULE I SUBSTANCE: POLITICAL PLOY OR ACCEPTED SCIENCE?

Annaliese Smith*

I. INTRODUCTION

In 1970, the United States Congress passed its first comprehensive prohibitory drug control statute.¹ This statute, known as the Controlled Substances Act ("CSA"), classifies substances into five categories based on their medical utility, abuse potential, and safety of use under medical supervision.² The most restrictive category, known as Schedule I, contains substances with no currently accepted medical use, high abuse potential, and a lack of demonstrated safety under medical supervision.³ Despite disagreement regarding marijuana's uses and effects,⁴ marijuana is a Schedule I substance.⁵ This classification is significant because Schedule I drugs may only be used for research purposes under strict guidelines.⁶

Due to the controversial nature of the classification of marijuana, challenges to its status began soon after enact-

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1. See Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-515, 84 Stat. 1236 (codified as amended in scattered sections of 21 U.S.C.).

2. See Rick J. Strassman, *Human Hallucinogenic Drug Research in the United States: A Present-Day Case History and Review of the Process*, 23(1) J. PSYCHOACTIVE DRUGS 29 (1991).

3. See 21 U.S.C. § 812 (1994).

4. See *infra* notes 112-13 and accompanying text.

5. See 21 C.F.R. § 1308.11 (1998).

6. See 21 U.S.C. § 823.

ment of the statute. Numerous criminal cases unsuccessfully challenged the constitutionality of the CSA.⁷ The first administrative petition⁸ challenging the Schedule I status of marijuana occurred in 1972.⁹ This began a twenty-year struggle between the Drug Enforcement Administration ("DEA") and private organizations¹⁰ to reschedule marijuana to recognize its accepted medical uses.¹¹

This comment traces the history of the legal status of marijuana in the United States¹² and argues for the rescheduling of marijuana¹³ through an objective analysis of the chemical properties of the substance.¹⁴ To explore how marijuana became a Schedule I substance, Part II of this comment first provides a brief history of marijuana use in America.¹⁵ To provide the non-scientific reader with the requisite foundation to evaluate the scientific data on marijuana, Part II then discusses the basic biochemical properties of marijuana,¹⁶ as well as a recent report released by the Institute of Medicine regarding marijuana.¹⁷ Part II then traces the history of drug criminalization statutes in the United States to better understand how the current scheduling scheme came into existence.¹⁸ Finally, Part II examines past attempts to challenge the scheduling status of marijuana to show what approaches failed and the arguments from both sides of the debate.¹⁹

7. See discussion *infra* Part II.E.1.

8. A petition may be filed with the Administrator of the Drug Enforcement Agency to reschedule a controlled substance. See 21 U.S.C. § 811.

9. See National Org. for the Reform of Marijuana Laws v. Ingersoll, 497 F.2d 654 (D.C. Cir. 1974).

10. The National Organization for the Reform of Marijuana Laws, the Alliance for Cannabis Therapeutics, and the Drug Policy Foundation are the principal organizations involved in challenging the Schedule I status of marijuana. See discussion *infra* Part II.E.2.

11. See discussion *infra* Part II.E.2.

12. See discussion *infra* Part II.D.

13. See discussion *infra* Part V.

14. See discussion *infra* Part IV.

15. See discussion *infra* Part II.A.

16. See discussion *infra* Part II.B. The author in no way intends to imply that this cursory overview of the data is sufficient for a comprehensive evaluation of the scheduling status of marijuana. The overview of the data is intended only to highlight available data and an actual petition for rescheduling would obviously consist of the specifics of many studies.

17. See discussion *infra* Part II.C.

18. See discussion *infra* Part II.D.

19. See discussion *infra* Part II.E.

Part III of this comment briefly identifies the problems of the current scheduling status of marijuana.²⁰ Part IV analyzes the medical and scientific data now available on the biochemical, neurological, and medical effects of marijuana.²¹ Finally, Part V presents a proposal for a petition to reschedule marijuana under the CSA. Specifically, Part V suggests that marijuana should be a Schedule III substance, although a transfer into Schedule II is a more feasible goal.²² In the alternative, Part V suggests that the government should consider a unique schedule for marijuana.²³

II. BACKGROUND

A. *History of Marijuana Use*

There is evidence of the human use of the psychoactive drug, marijuana,²⁴ throughout history. The earliest known reference to marijuana comes from a Chinese treatise on pharmacology in 2737 B.C.²⁵ Marijuana use began in the western world around 1545 A.D. when the Spanish introduced the plant to Chile.²⁶ By the eighteenth century, Virginians used the fiber of marijuana to make rope and possibly for recreational purposes as well.²⁷ Hemp cultivation in the United States declined, however, with the advent of more profitable

20. See discussion *infra* Part III.

21. See discussion *infra* Part IV.

22. See discussion *infra* Part V.

23. See discussion *infra* Part V.

24. The hemp plant from which marijuana comes, *Cannabis sativa*, grows throughout the world and flourishes in most temperate and tropical regions. See GERALD F. UELMEN & VICTOR G. HADDOX, *DRUG ABUSE AND THE LAW SOURCEBOOK* 2-100 (2d ed. 1998). Cannabis plant products have variously been called marijuana, hashish, charas, bhang, ganja, and sinsemilla, each varying in their content of delta-9-tetrahydrocannabinol, the active ingredient in marijuana. See ROBERT M. JULIEN, *A PRIMER OF DRUG ACTION* 330 (1995). The U.S. Code defines marijuana as "all parts of the plant *Cannabis sativa* L., whether growing or not; the seeds thereof; the resin extracted from any part of such plant; and every compound, manufacture, salt, derivative, mixture, or preparation of such plant, its seeds or resin." 21 U.S.C. § 802 (16) (1994).

25. See EDWARD M. BRECHER, *LICIT & ILLICIT DRUGS* 397 (Consumer Reports eds., 1972).

26. See *id.* at 403.

27. See JULIEN, *supra* note 24, at 332. This comment extensively cites this source due to a lack of extensive research in this field. Dr. Robert M. Julien is considered an expert in this area and *A Primer of Drug Action* is a reliable source of current data. But see generally *supra* note 16.

crops such as cotton.²⁸ Recreational use of marijuana existed throughout the nineteenth and early twentieth centuries.²⁹ Only during the 1960s, however, did marijuana as a recreational drug become popular.³⁰

Americans have historically used marijuana for its medicinal effects. During the 1800s, pharmacologists recommended marijuana for its analgesic and sedative properties to treat disorders such as dysmenorrhea, migraines, and painful terminal illnesses.³¹ However, aspirin and barbiturates became popular in the early 1900s and soon "the hypodermic syringe made rapid delivery of water-soluble opiates possible."³² Doctors preferred these opiates to the weaker and slower-acting cannabis extracts.³³ The identification and synthesis of THC in the 1970s made systemic administration of marijuana possible, reawakening interest in its therapeutic potential.³⁴

B. *The Basic Biochemical Properties of Marijuana and Its Effects on the Human Body*

1. *Biochemical Properties*

The effects of a drug on the human body depend upon how much of the drug is ingested, how it is ingested and how much of the drug is actually absorbed. This involves administration and absorption into the body; distribution throughout the body; interaction of the drug with receptors in the body (resulting in the drug's actions); and, finally, elimination from the body.³⁵

The major psychoactive ingredient of the marijuana plant is delta-9-tetrahydrocannabinol ("THC").³⁶ Marijuana prod-

28. See BRECHER, *supra* note 25, at 404.

29. See *id.* at 409.

30. See *id.*

31. See Russell Noyes, Jr. et al., *The Analgesic Properties of delta-9-tetrahydrocannabinol and Codeine*, 18(1) CLINICAL PHARMACOLOGY AND THERAPEUTICS 84 (1975).

32. *Id.*

33. See *id.*

34. See *id.*

35. See JULIEN, *supra* note 24, at 6.

36. See UELMEN & HADDOX, *supra* note 24, at 2-100.

ucts vary in THC concentration from one to seven percent;³⁷ most marijuana available in the United States has a THC content of three to four percent.³⁸ THC consumption usually occurs by smoking marijuana. Therefore, the quantity of THC absorbed varies with the previous smoking experience of the user, amount of time smoke is held in the lungs, and amount ingested.³⁹

Marijuana products are insoluble in water and improper for injection.⁴⁰ Therefore, inhalation and oral ingestion are the sole methods of administration available.⁴¹ The absorption of inhaled drugs is rapid and complete,⁴² resulting in the onset of behavioral effects within minutes after smoking, and reaching peak concentrations in the plasma quickly.⁴³ The effects seldom last longer than three to four hours, unless the user smokes more of the drug during this period.⁴⁴ If taken orally, THC absorption is slow and incomplete because this is a less efficient form of administration. The onset of effects usually occurs in three to sixty minutes and peak effects occur two to three hours after ingestion.⁴⁵ THC is three times more effective when smoked than when taken orally.⁴⁶

Once absorbed, THC is distributed to various organs of the body, especially areas with concentrations of fatty material.⁴⁷ THC also readily crosses the blood-brain barrier⁴⁸ into the brain.⁴⁹ THC eventually converts to an inactive, excretable metabolite.⁵⁰ However, the metabolism of THC is slow,

37. See JULIEN, *supra* note 24, at 330.

38. See M. Perez-Reyes et al., *Pharmacological Effects of Daily Marijuana Smoking in Humans*, 40 PHARMACOLOGY, BIOCHEMISTRY, BEHAVIOR 693 (1991).

39. See JULIEN, *supra* note 24, at 338.

40. See *id.* at 340.

41. See *id.* at 338–40.

42. See *id.* at 338.

43. See Perez-Reyes, *supra* note 38, at 692.

44. See JULIEN, *supra* note 24, at 338.

45. See *id.*

46. See *id.*

47. See David E. Smith, *Review of the American Medical Association Council on Scientific Affairs Report on Medical Marijuana*, 30(2) J. PSYCHOACTIVE DRUGS 128 (1998).

48. The blood brain barrier is a barrier of specialized cells that not all substances traverse. Psychoactive substances may cross this barrier and exert their actions on the brain after crossing. See JULIEN, *supra* note 24, at 20.

49. See Smith, *supra* note 47, at 129.

50. See *id.*

and therefore low levels of THC persist in the body for several days or even weeks.⁵¹

2. *Effects of Marijuana*

a. *Internal Effects of THC*

THC causes an increase in pulse rate and dilation of blood vessels in the cornea, but does not affect blood pressure.⁵² Significantly, dangerous physical reactions to marijuana are almost unknown.⁵³ "No human being is known to have died of an overdose."⁵⁴ This distinguishes marijuana from other controlled substances, which universally have the potential for lethal effects.

Many studies focus on the effects of marijuana in the brain that may result in changes in cognition, learning, and attention.⁵⁵ These studies show acute marijuana use impairs the ability to perform complex functions requiring attention and mental coordination. However, simple reflex activities are less affected.⁵⁶ In chronic users, data indicate that long-term marijuana use impairs the ability to efficiently process information.⁵⁷

Like all psychoactive drugs, side effects of marijuana affect systems of the body other than the brain. Inhaling marijuana has irritant effects on the lungs, but no studies show a link between marijuana smoking and lung cancer.⁵⁸ Data varies regarding marijuana's effects on the immune system. Evidence indicates that long-term use may cause a degree of immunosuppression.⁵⁹ Studies show the presence of cannabinoid receptors in the membranes of spleen cells that, when activated by THC, reduce the ability of the spleen cells to function adequately in the immune response.⁶⁰ Marijuana

51. *See id.*

52. *See* JULIEN, *supra* note 24, at 340-41.

53. *See id.*

54. *See id.*

55. *See id.* at 342.

56. *See id.*

57. *See* N. Solowij et al., *Effects of Long-Term Cannabis Use on Selective Attention: An Event-Related Potential Study*, 40 PHARMACOLOGY, BIOCHEMISTRY, BEHAVIOR 683 (1991).

58. *See* JULIEN, *supra* note 24, at 346.

59. *See* L.E. Hollister, *Marijuana and Immunity*, 20 J. PSYCHOACTIVE DRUGS 5 (1988).

60. *See* Norbert E. Kaminski et al., *Identification of a Functionally Relevant*

also effects the reproductive systems of men and women, but all effects appear reversible upon discontinuation of use.⁶¹

While tolerance to cannabis occurs,⁶² physical dependence on THC does not develop.⁶³ "[C]hronic heavy use of cannabis does not result in a withdrawal syndrome with severe symptomatology."⁶⁴ Dependence on the drug is more likely to be psychological than physical.⁶⁵

b. Behavioral Effects

Marijuana has sedative, euphoriant, and, when taken in large doses, hallucinogenic properties.⁶⁶ At low to moderate doses, clinical effects of marijuana are similar to alcohol and anti-anxiety agents.⁶⁷ THC causes an increase in appetite, dry mouth, and slight nausea.⁶⁸ At higher doses, THC may also produce euphoria, hallucinations, and heightened sensations, effects similar to a mild LSD experience.⁶⁹ Even at very high doses, THC does not produce anesthesia, coma, or death.⁷⁰ It is this fact, above all others, that distinguishes marijuana from other "drugs of abuse."⁷¹

3. Therapeutic Uses for THC

There are several recognized therapeutic uses for THC. THC exhibits mild analgesic properties, serves as an anti-

Cannabinoid Receptor on Mouse Spleen Cells that is Involved in Cannabinoid-Mediated Immune Modulation, 42 MOLECULAR PHARMACOLOGY 736 (1992).

61. See A. GOLDSTEIN, ADDICTION: FROM BIOLOGY TO DRUG POLICY 175 (1994).

62. See JULIEN, *supra* note 24, at 349.

63. See M.E. Abood & B.R. Martin, *Neurobiology of Marijuana Abuse*, 13 TRENDS IN PHARMACEUTICAL SCIENCES 202 (1992). Drug tolerance occurs when there is "a progressively decreasing responsiveness to a drug," i.e., when a person needs increasingly larger doses to achieve the same effect. JULIEN, *supra* note 24, at 33. Physical dependency, however, occurs when the drug is needed to function normally and absence of the drug results in withdrawal. See *id.* at 35.

64. JULIEN, *supra* note 24, at 349.

65. See *id.*

66. See *id.* at 330.

67. See *id.* at 330-31.

68. See *id.* at 341.

69. See *id.* at 331. Lysergic acid diethylamide ("LSD") is a semisynthetic psychedelic drug that evokes perceptual changes, particularly visual hallucinations and perceptual distortions. See *id.* at 315.

70. See JULIEN, *supra* note 24, at 331.

71. The phrase "drugs of abuse" is the term usually used in literature and the media to refer to illicit substances classified as illegal to possess and lead to psychological and physical dependence (e.g., cocaine and heroine).

epileptic, decreases intraocular pressure in glaucoma patients, relieves bronchospasm in asthmatics, stimulates the appetite, and promotes weight gain.⁷² Currently, two synthetic cannabinoids—dronabinol (otherwise known as “Marinol”)⁷³ and nabilone (otherwise known as “Cesamet”)—are available for treatment of nausea and vomiting associated with chemotherapy in cancer patients.⁷⁴

C. *The Institute of Medicine Report of 1999*

The Institute of Medicine (“IOM”) was “chartered in 1970 by the National Academy of Sciences to enlist distinguished members of the appropriate professions in the examination of policy matters pertaining to the health of the public.”⁷⁵ The institute’s 1999 report, *Marijuana and Medicine: Assessing the Science Base* was the result of a request from the White House Office of National Drug Control Policy (“ONDCP”) for an assessment of the potential health benefits and risks of marijuana.⁷⁶ The study took two years to complete and consisted of the analysis of scientific as well as anecdotal evidence.⁷⁷ This multifaceted approach enabled IOM researchers to examine evidence from unpublished studies.⁷⁸ The IOM encouraged participation from the public and involved equal numbers opposed to and in favor of the medical use of marijuana.⁷⁹ After evaluating the evidence, the report concluded that there are identified medical uses of marijuana but that the future of drugs consisting of cannabinoids does not involve *smoked* marijuana.⁸⁰

The study evaluated three areas: the effects of isolated cannabinoids; the health risks associated with the medical use of marijuana; and the efficacy of marijuana.⁸¹ The report recognized the role of isolated cannabinoids in the brain, suggesting the need for more research on the effects of identifi-

72. See JULIEN, *supra* note 24, at 344.

73. Dronabinol is THC formulated in sesame oil. See *id.*

74. See *id.*

75. INSTITUTE OF MEDICINE, *MARIJUANA AND MEDICINE: ASSESSING THE SCIENCE BASE* at 2 (Janet E. Joy et al. eds., National Academy Press 1999).

76. See *id.* at 7.

77. See *id.* at 8.

78. See *id.* at 11.

79. See *id.* at 8.

80. See *id.* at 9.

81. See Institute of Medicine, *supra* note 75, at 2.

able cannabinoids.⁸² The study also recognized a potential therapeutic value of cannabinoid drugs, particularly THC, for “pain relief, control of nausea and vomiting, and appetite stimulation.”⁸³ However, because smoking marijuana is a “crude THC delivery system that also delivers harmful substances,” the report suggested development of reliable and safe delivery systems.⁸⁴

The study acknowledges that marketing a safe delivery mechanism for cannabinoids is many years away. However, for many patients with debilitating symptoms, the potential pain relief far outweighs any potential long-term detrimental effects. Therefore, smoked marijuana may provide necessary relief until the development of new THC delivery systems.⁸⁵ The report therefore recommends short-term use of smoked marijuana under these conditions.⁸⁶

While the IOM report has no immediate effect on the scheduling status of marijuana, it certainly adds impetus to transfer marijuana from its current Schedule I status. Organizations fighting to reschedule marijuana rely on the IOM findings and hope the government no longer denies the scientific conclusions regarding the medicinal value of marijuana.⁸⁷

D. *History of Drug Criminalization Statutes*

1. *Early Development of Drug Laws*

The earliest efforts to regulate drugs in the United States involved taxation.⁸⁸ In 1915, Congress enacted the Federal Narcotics Internal Revenue Regulations,⁸⁹ commonly called the Harrison Narcotics Act.⁹⁰ The bill was not prohibitive but

82. *See id.*

83. *Id.* at 3.

84. *Id.* at 179.

85. *See id.*

86. *See id.*

87. *See, e.g.,* Paul Armentano, *Federally Commissioned Study Supports Medical Marijuana, Dismisses Drug's "High Potential For Abuse"* (visited Mar. 31, 2000) <<http://www.norml.org/medical/iomresponse.shtml>>.

88. *See* ALEXANDER T. SHULGIN, *CONTROLLED SUBSTANCES ACT: A RESOURCE MANUAL OF THE CURRENT STATUS OF THE FEDERAL DRUG LAWS* 227 (1988).

89. Harrison Narcotics Act, 26 U.S.C. § 4701 (1915).

90. *See* SHULGIN, *supra* note 88, at 227. The Harrison Narcotics Act divided drugs into four classes. Class A contained highly addictive drugs. Class B contained drugs considered to possess little potential for addiction. The third class,

rather a tax measure, drafted to license and tax importers, manufacturers, sellers and dispensers of opium or cocaine.⁹¹

The greatest impetus to the outlawing of marijuana occurred during the 1930s. The federal commissioner of narcotics encouraged the states and the Bureau of Narcotics to vigorously enforce laws against using marijuana.⁹² Via the media, the public believed marijuana was "a potent narcotic that induced people to commit crimes of violence, led to heroin addiction, and was a great social menace."⁹³ Further, popular culture labeled marijuana as addictive and a cause of insanity.⁹⁴ Amidst these public beliefs, Congress enacted the Marijuana Tax Act of 1937.⁹⁵ This Act required industrial (i.e. those that used marijuana for industrial purposes only) or medical users to register and pay a tax of one dollar per ounce.⁹⁶ Marijuana used for recreational purposes was taxed at \$100 per ounce.⁹⁷ From the 1940s through the 1960s, Congress placed various other restrictions on marijuana and other drugs.⁹⁸

2. *The Controlled Substances Act*

In 1970, Congress passed the Controlled Substances Act.⁹⁹ The CSA dealt with the problem of drug abuse in the United States by (1) providing authority to increase efforts for drug abuse prevention and rehabilitation of users, (2) providing a more effective means for law enforcement in the areas of drug abuse prevention and control, and (3) providing a balanced scheme of criminal penalties for drug offenses.¹⁰⁰

Class X, contained exempt narcotics. The fourth class, Class M, contained "especially exempt" narcotics. *See id.*

91. *See id.*

92. *See id.* at 229.

93. *Id.*

94. *See id.*

95. *See* Marijuana Tax Act, Pub. L. No. 75-238, ch. 553, 50 Stat. 551 (1937).

96. *See* Smith, *supra* note 47, at 128. Although this was a tax act and not prohibitory in any way, the American Medical Association's Committee on Legislative Activities opposed the passage of the Act, recommending that marijuana's status as a medicinal agent be maintained. *See id.*

97. *See id.*

98. *See* SHULGIN, *supra* note 88, at 229.

99. *See* Comprehensive Drug Abuse Prevention and Control Act of 1970, Pub. L. No. 91-515, 84 Stat. 1236 (codified as amended in scattered sections of 21 U.S.C.).

100. *See* National Org. for the Reform of Marijuana Laws v. Bell, 488 F. Supp. 123, 126 (D.D.C. 1980).

The Bureau of Narcotics and Dangerous Drugs, within the Department of Justice, was the agency appointed to implement the CSA. The primary concerns of the agency were diversion, distribution, and enforcement.¹⁰¹ The CSA delegated responsibility for safe and effective medical use to the FDA and the role of scientific research to the National Institute of Drug Abuse ("NIDA").¹⁰²

The CSA placed all medications and drugs of abuse into five categories based on three factors: (1) medical utility, (2) abuse potential, and (3) safety of use under medical supervision.¹⁰³ Congress also based the classifications on "certain social and medical information."¹⁰⁴ Schedule I is the most restrictive category, Schedule V the least restrictive.¹⁰⁵

Congress laid out guidelines for each of the five schedules. The CSA requires scientific findings to place a substance into a specific schedule unless an international treaty, convention, or protocol in effect on October 27, 1970 dictates otherwise.¹⁰⁶ Schedule I drugs must have a high potential for abuse, no currently accepted medical use in the United States, and a lack of accepted safety for use under medical supervision.¹⁰⁷ Schedule II drugs must have a high potential for abuse, a currently accepted medical use or a currently accepted medical use with severe restrictions, and abuse leading to severe psychological or physical dependence.¹⁰⁸ Sched-

101. See SHULGIN, *supra* note 88, at 231.

102. See *id.*

103. See Strassman, *supra* note 2, at 29.

104. *Bell*, 488 F. Supp. at 127 (citing H.R. REP. No. 91-1444 (1970), at 1, reprinted in 1970 U.S.C.C.A.N. 4566, 4567).

105. See 21 U.S.C. § 812 (1994).

106. See *id.*

107. See *id.* Schedule I consists of 42 opiates, 22 opium derivatives (including heroin and several structures of codeine and morphine), 17 hallucinogenic substances (including LSD, marijuana, mescaline, peyote, psilocybin and tetrahydrocannabinols), two depressants (including methaqualone), and seven stimulants. The tetrahydrocannabinols listed on Schedule I are defined as synthetic equivalents of substances contained in the plant or in the resinous extracts or synthetic substances with similar chemical structure and pharmacological activity. See *id.*

108. See *id.* Schedule II currently consists of 16 opium and opiate derivatives (including raw, powdered, granulated, fluid and extract of opium, codeine, and morphine); opium poppy and poppy straw; coca leaves and any derivative or preparation of (including cocaine); concentrate of poppy straw; 27 opiates (including fentanyl and methadone); four stimulants (including amphetamine and methamphetamine); five depressants (including PCP); and immediate precursors to amphetamine, methamphetamine, and PCP (phencyclidine). See *id.*

ule III substances have a potential for abuse less than the drugs in Schedule I and II, a currently accepted medical use, and abuse of the drug leading to only moderate or low physical dependence or high psychological dependence.¹⁰⁹ Schedule IV drugs have a low potential for abuse relative to the drugs in Schedule III, a currently accepted medical use in treatment in the United States, and abuse leading to limited physical dependence or psychological dependence relative to the drugs in Schedule III.¹¹⁰ Finally, Schedule V drugs contain low potential for abuse relative to the Schedule IV drugs, a currently accepted medical use in the United States, and abuse leading to limited physical dependence or psychological dependence relative to the Schedule IV substances.¹¹¹

Placing hallucinogens in general, and marijuana in particular, into Schedule I was controversial. The House Report recommending marijuana as Schedule I indicates Congress's uncertainty regarding this classification of marijuana.¹¹² The report only placed marijuana in Schedule I "at least until the completion of certain studies now under way" and projected that the Presidential Commission's recommendations would "aid in determining the appropriate disposition of this question in the future."¹¹³ This language indicates that Congress may have considered that a final placement for marijuana in another schedule would occur after future research.

The U.S. Attorney General has the authority to add or transfer a drug between the schedules if the drug meets the requirements of the target schedule.¹¹⁴ The Attorney General also has the authority to remove any drug from the schedules

109. *See id.* Schedule III consists of four stimulants; ten depressants; nalorphine; certain dosages and combinations of narcotic drugs (including codeine, opium, and morphine); two hallucinogenic substances (dronabinol and nabilone); and anabolic steroids. *See id.*

110. *See id.* Schedule IV consists of two narcotic drugs; forty-eight depressants (including alprazolam, chloral hydrate, diazepam, and fenfluramine); eleven stimulants; and two "other" substances. *See id.*

111. *See* 21 U.S.C. § 812. Schedule V consists of one narcotic drug, buprenorphine, narcotic drugs such as codeine and opium with non-narcotic medicinal ingredients at such a proportion to result in medicinal qualities other than those possessed by the narcotic drug alone, and one stimulant, pyrovalerone. *See id.*

112. *See* National Org. for the Reform of Marijuana Laws v. Ingersoll, 497 F.2d 654, 657 (D.C. Cir. 1974).

113. *Id.* (quoting from H.R. REP. No. 91-1444 (1970), at 13, reprinted in 1970 U.S.C.C.A.N. 4566, 4579).

114. *See* 21 U.S.C. § 811.

if the substance does not meet the requirements for inclusion in any schedule.¹¹⁵ The Attorney General has historically delegated this authority to the Administrator of the DEA ("Administrator").¹¹⁶

Before initiating proceedings to add, transfer, or delete a substance from a schedule, the Administrator must request a scientific and medical evaluation from the Secretary of Health, Education, and Welfare.¹¹⁷ Under the CSA, the Administrator must also consider the following factors: the drug's actual or relative potential for abuse; scientific evidence of its pharmacological effect; the state of current scientific knowledge regarding the substance; its history and current pattern of abuse; the scope, duration, and significance of abuse; what, if any, risk there is to public health; the substance's psychological or physiological dependence liability; and whether the substance is an immediate precursor of a substance already controlled under the Act.¹¹⁸

E. *Past Attempts to Reschedule Marijuana*

The rescheduling of marijuana is not a new idea. Individuals and organizations have challenged the federal scheduling of marijuana on constitutional, practical, and scientific grounds practically since adoption of the CSA.

1. *Criminal Cases Challenging the Schedule I Status of Marijuana*

In the 1973 case of *United States v. LaFroschia*, a defendant charged with importing and possessing marijuana brought the first constitutional challenge to the scheduling status of marijuana on the grounds that "there is no rational basis for Congress to classify marijuana as a controlled substance."¹¹⁹ The defendant argued that marijuana should be a Schedule V, rather than Schedule I, substance.¹²⁰ The United

115. *See id.*

116. *See Alliance for Cannabis Therapeutics v. DEA*, 15 F.3d 1131, 1133 (D.C. Cir. 1994).

117. *See* 21 U.S.C. § 811(b).

118. *See id.* 811(c).

119. *United States v. LaFroschia*, 354 F. Supp. 1338, 1340 (S.D.N.Y. 1973).

120. *See id.* The defendant had based his unsuccessful scheduling argument on a report of the Commission on Marijuana and Drug Abuse, a commission established by Congress, which proposed a relaxation of the laws regarding marijuana. *See id.* at 1341.

States District Court for the Southern District of New York upheld the constitutionality of the CSA on three bases: (1) Congress has absolute power to prohibit the importation of narcotics; (2) the illegal importation of marijuana has a harmful effect on the health and general welfare of the American people;¹²¹ and (3) the CSA satisfies the obligations of the United States under its international treaties.¹²² The court denied the rescheduling argument as well, claiming that judicial action would be intrusive because the defendant failed to follow the proper administrative procedures for rescheduling a controlled substance.¹²³

The National Organization for the Reform of Marijuana Laws ("NORML"), a perennial presence in the rescheduling battle, began its first constitutional challenge in 1973.¹²⁴ The organization filed an action seeking injunctive relief, claiming constitutional violations of privacy, equal protection, and the constitutional guarantee against cruel and unusual punishments.¹²⁵ Evidentiary hearings,¹²⁶ wherein both sides presented evidence on the effects of marijuana, were not heard until 1978.¹²⁷ The court finally issued its decision in 1980, denying the privacy claim on the basis that smoking marijuana does not qualify as a fundamental right.¹²⁸ The court rejected the equal protection claims on the basis that legislation not affecting a fundamental right or suspect class need only bear a rational relationship to a legitimate governmental interest.¹²⁹

121. *See id.* at 1340.

122. *See id.* at 1341.

123. *See id.* In 1976, the U.S. District Court in Delaware found that Congress had a rational basis for classifying marijuana as a Schedule I substance. *See United States v. Bergdoll*, 412 F. Supp. 1308, 1313 (D. Del. 1976). The court conceded that opinions vary widely regarding the extent of marijuana restrictions but did not explain why the CSA regulations were rational. *See id.*

124. *See National Org. for the Reform of Marijuana Laws v. Bell*, 488 F. Supp. 123, 125 (D.D.C. 1980).

125. *See id.*

126. The court originally issued a one-year stay while NORML pursued the administrative avenue to reclassify marijuana. *See discussion infra* Part II.E.2. After the stay was vacated, the parties battled over preliminary motions for two years. *See Bell*, 488 F. Supp. at 125.

127. *See Bell*, 488 F. Supp. at 125.

128. *See id.* at 132.

129. *See id.* The court cited a report to Congress in which the Department of Health, Education, and Welfare suggested classification in Schedule I until further data could be compiled. *See id.* at 135 n.32.

The 1980s brought two more constitutional challenges to the CSA. In *United States v. Fogarty*,¹³⁰ the court dismissed due process and equal protection claims, reasoning that there was an ongoing debate regarding the therapeutic uses of marijuana, the standards set out in the CSA are not exclusive, and there remains a problem with marijuana abuse.¹³¹ In *United States v. Greene*,¹³² the defendant claimed that charges against him for unlawful distribution of marijuana violated his due process and free exercise of religion rights.¹³³ Despite the testimony of the defendant's expert pharmacologist,¹³⁴ the court rejected the claim in light of the negative past federal precedent.¹³⁵

2. *The Petitions to Reschedule*

Another route to challenge marijuana's Schedule I status is by petitioning for rescheduling. Under the CSA, the Administrator of the DEA has the authority to reschedule drugs.¹³⁶ In rescheduling a drug, the Administrator must consider "[s]cientific evidence of [the drug's] pharmacological effect, if known,' and '[t]he state of current scientific knowledge regarding the drug or other substance.'"¹³⁷ Since the early 1970s, several organizations petitioned for the rescheduling of marijuana.

a. *The NORML Petition*

NORML filed a rule-making petition in 1972 in the U.S. Court of Appeals for the D.C. Circuit requesting that marijuana either be removed from the CSA entirely or transferred to Schedule V.¹³⁸ The court rejected the petition that same year, citing United States treaty obligations, but remanded the issue to the DEA for further consideration, and recommended that the DEA consider separately rescheduling the

130. *United States v. Fogarty*, 692 F.2d 542 (8th Cir. 1982).

131. *See id.* at 548.

132. *United States v. Greene*, 892 F.2d 453 (6th Cir. 1989).

133. *See id.* at 454.

134. *See id.* at 455.

135. *See id.* at 456.

136. *See supra* text accompanying notes 106–08.

137. *Alliance for Cannabis Therapeutics v. DEA*, 15 F.3d 1131, 1133 (D.C. Cir. 1994) (quoting 21 U.S.C. § 811(c)(2), (3) (1994)).

138. *See National Org. for the Reform of Marijuana Laws v. Ingersoll*, 497 F.2d 654, 655 (D.C. Cir. 1974).

leaves of the plant.¹³⁹ On remand, the administrative law judge held that cannabis and cannabis resin, as defined in the treaty, could be rescheduled to Schedule II; that cannabis leaves could be rescheduled to Schedule V; and that cannabis seeds and synthetic THC could be removed from the schedules altogether.¹⁴⁰ Despite this finding, the Acting DEA Administrator claimed an inability to remove marijuana from Schedule I because it had no currently accepted medical use, stating that "no matter the weight of the scientific or medical evidence which petitioners might adduce, the Attorney General could not remove marihuana from Schedule I."¹⁴¹ In late 1975, NORML filed a petition for review of the Acting Administrator's order.¹⁴² This resulted in further argument over semantics.

The DEA argued that where United States treaty obligations¹⁴³ require a measure of control over a substance, section 811(d) of the CSA¹⁴⁴ relieves the Administrator of the duty to refer the petition to the Secretary of Health, Education, and Welfare.¹⁴⁵ NORML asserted in response that Section 811(d) merely authorizes the Administrator to override the Secre-

139. *See id.* at 656, 660.

140. *See* National Org. for the Reform of Marijuana Laws v. DEA, 559 F.2d 735, 742 (D.C. Cir. 1977).

141. *Id.* at 743 (quoting 40 Fed. Reg. 44167 (1975)).

142. *See id.*

143. The United States ratified the Single Convention on Narcotic Drugs in 1967. *See id.* at 739. The Single Convention establishes several classifications of substances, with varying degrees of control attached to each. *See id.* The Convention prescribes varying degrees of control to the different parts of the cannabis plant. The flowering tops of the plant and the cannabis resin are listed in Schedules I and IV, meaning that production, distribution, and possession are limited to authorized scientific and medical purposes. Further, a party state shall prohibit production, manufacture, export, and import of marijuana if it is the most appropriate means of protecting the public health and welfare. *See id.* Because of the treaty's definition of cannabis, the leaves and seeds are not subject to these controls when separated from the tops of the plant. *See id.*

144. That section of the CSA provides:

If control is required by United States obligations under international treaties, conventions, or protocols in effect on [October 27, 1970], the Attorney General shall issue an order controlling such drug under the schedule he deems most appropriate to carry out such obligations, without regard to the findings required by subsection (a) of this section or section [812 (b) of this title] and without regard to the procedures prescribed by subsections (a) and (b) of this section.

21 U.S.C. § 811(d)(1) (1994).

145. *See* DEA, 559 F.2d at 738.

tary's recommendations to the extent those recommendations conflict with U.S. treaty commitments.¹⁴⁶ Congress resolved the conflict by requiring the Attorney General to seek advice from the Secretary of Health, Education, and Welfare *and* from the Scientific Advisory Committee.¹⁴⁷ The court determined that the Attorney General determines the *minimum* schedule necessary to meet international obligations, while the Secretary decides *which* schedule the substance falls into according to scientific and medical evidence.¹⁴⁸

With that issue settled, the court moved on to the actual rescheduling arguments. The court found that, "placement in Schedule I does not appear to flow inevitably from lack of currently accepted medical use."¹⁴⁹ Rather, the CSA calls for the balancing of medical usefulness with several other considerations, including potential for abuse and danger of dependence. Thus, medical use is only one factor.¹⁵⁰ The court recognized possible treatment uses of marijuana and recommending further study of these possible uses.¹⁵¹ Finally, the court remanded the case once again for further findings from the Secretary of Health, Education, and Welfare.¹⁵²

At this point, NORML incorporated the petitions of individuals afflicted with various painful diseases and forwarded it to the Department of Health, Education, and Welfare ("HEW").¹⁵³ After two more years of inaction, NORML filed a complaint alleging that HEW unreasonably delayed action on the petition.¹⁵⁴ In response to this complaint, HEW recom-

146. *See id.* at 739.

147. *See id.* One of the representatives who sponsored the bill remarked, "[l]et us also make a definite point of the fact that purely enforcement responsibilities are placed with the Department of Justice while medical and scientific judgements necessary to drug control are left where they properly should lie and that is with the Department of Health, Education, and Welfare." *See* 116 CONG. REC. 33300 (1970).

148. *See DEA*, 559 F.2d at 747.

149. *Id.* at 748. Both parties agreed that classification of cannabis and cannabis resin under Schedule II still satisfied United States treaty obligations. *See id.* at 751. As for seeds capable of germination, the court upheld the acting Administrator's decision to keep them under Schedule V at the very least. *See id.* at 756.

150. *See id.* In fact, the court cited several Schedule II substances with no currently accepted medical use, including poppy straw. *See id.*

151. *See id.* at 749.

152. *See id.* at 757.

153. *See* 1 MARIJUANA, MEDICINE & THE LAW at vi (R.C. Randall ed., 1988).

154. *See* 1 *id.*

mended to the DEA that marijuana remain in Schedule I.¹⁵⁵ Only ten days later, the DEA officially denied NORML's petition to reschedule.¹⁵⁶ NORML responded by filing its third request for review with the U.S. Court of Appeals.¹⁵⁷ The U.S. Court of Appeals responded by ordering the DEA to review the petition in its entirety, Health & Human Services ("HHS") to make scientific and medical findings on all substances at issue, and for both government agencies to file quarterly progress reports with the court.¹⁵⁸

In the mid-1980s it appeared that action would finally be taken as a result of this arduous process. In 1985, the FDA approved THC in the form of dronabinol for marketing.¹⁵⁹ In 1986, the DEA rescheduled synthetic THC to Schedule II.¹⁶⁰ The DEA finally called for public hearings on marijuana's proper classification, as ordered by the Court of Appeals seven years earlier.¹⁶¹ After two years of these hearings, the administrative law judge ruled that marijuana should be transferred from Schedule I to Schedule II, based on evidence that a respectable minority of physicians accept the medical uses of marijuana.¹⁶² NORML had finally succeeded—until the Administrator rejected this recommendation, requiring a greater showing to prove currently accepted medical use before approving such a transfer.¹⁶³

The Administrator based his rejection of a currently accepted medical use on an eight-factor test, under which a drug has a currently accepted medical use if the following factors can be shown:

- (1) Scientifically determined and accepted knowledge of its chemistry;
- (2) The toxicology and pharmacology of the substance in animals;
- (3) Establishment of its effectiveness in humans through scientifically designed clinical trials;
- (4) General availability of the substance and information regarding the substance and its use;
- (5) Recogni-

155. See 1 *id.* at vii.

156. See 1 *id.*

157. See 1 *id.*

158. See 1 *id.*

159. See 1 MARIJUANA, MEDICINE & THE LAW, *supra* note 153, at vii.

160. See 1 *id.* at viii.

161. See 1 *id.*

162. See 2 *id.* at 445.

163. See *Alliance for Cannabis Therapeutics v. DEA*, 930 F.2d 936, 938 (D.C. Cir. 1991).

tion of its clinical use in generally accepted pharmacopeia, medical references, journals or textbooks; (6) Specific indications for the treatment of recognized disorders; (7) Recognition of the use of the substance by organizations or associations of physicians; and (8) Recognition and use of the substance by a substantial segment of the medical practitioners in the United States.¹⁶⁴

The Administrator determined that the chemistry and pharmacology of marijuana were not established, its effectiveness in humans was not sufficiently documented in clinical trials, and it was not generally accepted as medicine.¹⁶⁵

In the 1990s, the Alliance for Cannabis Therapeutics ("ACT") joined NORML in the struggle to reschedule marijuana.¹⁶⁶ The groups challenged this most recent rejection by the DEA by alleging that the Administrator unreasonably rejected the petition, improperly basing his determination on the absence of demonstrated scientific evidence, and that the drug is actually medically useful and safe.¹⁶⁷ Petitioners also claimed that factors (4), (5), and (8)¹⁶⁸ are impossible to meet.¹⁶⁹ The very nature of the Schedule I classification prevents drugs currently in Schedule I from satisfying these criteria.¹⁷⁰ Agreeing with the petitioners, the court again remanded the petition to the DEA, this time for an explanation of how these three factors affected the Administrator's decision.¹⁷¹ The new Administrator approved his predecessor's determination, concluding that two of the three criteria had not been relied upon, and the third was explained.¹⁷²

ACT, the Drug Policy Foundation ("DPF"), and NORML appealed this last order of the Administrator.¹⁷³ The D.C. Circuit again upheld the Administrator's rejection, but stated a

164. *Id.* (citing Schedules of Controlled Substances, 53 Fed. Reg. 5156 (1988) (codified at 21 C.F.R. pt. 1308)).

165. *See id.*

166. *See id.*

167. *See id.* at 939.

168. *See supra* text accompanying note 164.

169. *See Alliance for Cannabis Therapeutics*, 930 F.2d at 940.

170. *See id.*

171. *See id.*

172. *See Alliance for Cannabis Therapeutics v. DEA*, 15 F.3d 1131, 1134 (D.C. Cir. 1994).

173. *See id.* at 1133.

new, five-part test¹⁷⁴ to determine currently accepted medical use.¹⁷⁵ This 1994 rejection was the last chapter of the NORML petition. At this point, the petition, first filed in 1972, has not brought about a change in the scheduling status of marijuana. However, the many decisions have resulted in greater precision in the statutory guidelines, and a running sentiment of the court that marijuana has medicinal value.

b. *The Gettman Petition for Repeal of Marijuana Prohibition (1995)*

In July of 1995, Jon Gettman, former NORML national director and publisher of High Times magazine, filed an administrative petition with the DEA claiming that marijuana lacks the requirements necessary for Schedule I or II status.¹⁷⁶ Unlike the past petition challenging the scheduling status on the grounds of an accepted medical use, the Gettman petition challenged the status of THC-containing compounds (Schedule I), dronabinol (Schedule II) and nabilone (Schedule II) on the basis that they do not have sufficient abuse potential.¹⁷⁷ Under the CSA, this petition requires a scientific and medical evaluation by HHS.¹⁷⁸ In 1998, the DEA requested the HHS to conduct a "scientific and medical evaluation of the available data and provide a scheduling recommendation" for marijuana and other cannabinoids.¹⁷⁹ HHS has yet to give its recommendation.

Since the release of the report by the Institute of Medicine,¹⁸⁰ the petitioners and other advocates hope the HHS

174. Factors to determine whether a drug is in currently accepted medical use are: (1) the drug's chemistry must be known and reproducible; (2) there must be adequate safety studies; (3) there must be adequate and well-controlled studies proving efficacy; (4) the drug must be accepted by qualified experts; and (5) the scientific evidence must be widely available. *See id.* at 1135.

175. *See id.*

176. *See* Paul Armentano, *IOM Findings Challenge Legal Justification for Marijuana Prohibition* (visited Apr. 14, 1999) <<http://www.norml.org/medical/iomresponse.shtml>>.

177. *See* Jon Gettman, *Petition for Repeal of a Rule* (visited Jan. 19, 1999) <<http://www.norml.org/legal/extra.shtml>>. Note, as of July 1999, dronabinol and nabilone have been placed in Schedule III. *See generally supra* note 109.

178. *See* Jon Gettman, *Petition to the DEA to Reschedule Marijuana* (visited Mar. 31, 2000) <<http://www.norml.org/legal/petition.shtml>>.

179. *See* Armentano, *supra* note 176.

180. *See supra* Part II.C.

study currently underway leads to a grant of the petition to reschedule.¹⁸¹ According to the advocates at NORML:

The burden of proof for maintaining the legal justification for marijuana prohibition has now shifted to the federal government and the international prohibitionist community. Unless they can produce evidence that finds the [Institute of Medicine]'s conclusions incorrect, they are legally required to end marijuana prohibition by removing marijuana from Schedule I status.¹⁸²

III. IDENTIFICATION OF THE PROBLEM

This year marks the thirtieth anniversary of the CSA. For the statute's entire existence, organizations and individuals have disagreed upon the scheduling status of one drug in particular: marijuana. The main issue that challengers face is how to finally accomplish a successful petition for rescheduling. This comment attempts to identify a feasible approach to petitioning by taking an objective approach to the evidence and attacking the current status of marijuana on every prong of the test.

IV. ANALYSIS

Determining which schedule is appropriate for marijuana under the CSA requires evaluation of the factors used to categorize substances. Originally, courts classified substances based on (1) their accepted medical use, (2) abuse potential, and (3) safety of use under medical supervision.¹⁸³ The DEA later identified five factors to determine whether a drug is currently medically accepted: (a) the drug's chemistry must be known and reproducible; (b) there must be adequate safety studies; (c) there must be adequate and well-controlled studies proving efficacy; (d) the drug must be accepted by qualified experts; and (e) the scientific evidence must be widely available.¹⁸⁴ The current medical evidence on marijuana requires evaluation using these guidelines to determine the proper classification of marijuana.

181. See Armentano, *supra* note 176.

182. *Id.*

183. See *supra* text accompanying note 103.

184. See *supra* note 174.

A. *The Medical Utility of Marijuana*

Numerous studies show that marijuana is effective in reducing nausea and vomiting,¹⁸⁵ lowering intraocular pressure associated with glaucoma,¹⁸⁶ and decreasing muscle spasm and spasticity.¹⁸⁷ Numerous AIDS and cancer patients smoke marijuana to combat nausea and vomiting.¹⁸⁸ In fact, one survey revealed that forty-four percent of oncologists recommended marijuana to their cancer patients.¹⁸⁹

Foes of the medical marijuana movement identify Marinol, a prescription drug containing THC, as an adequate alternative to smoked marijuana. Although marketed in the United States as an anti-emetic,¹⁹⁰ this synthetic THC has serious cost-related and pharmacological drawbacks. A patient taking a normal prescription of three five-milligram tablets of Marinol per day spends over \$5,000 in one year.¹⁹¹ The pharmacological drawbacks of Marinol relate to its intake in oral form.¹⁹² Oral ingestion of THC means a slower entrance into the bloodstream, yielding lower concentrations per dose.¹⁹³ Oral THC stays in the body longer at effective concentrations and more THC metabolizes to an active compound. Therefore, oral THC more frequently results in unpleasant psychoactive effects.¹⁹⁴ Furthermore, for patients suffering from nausea, the act of swallowing the capsules may provoke vomiting.¹⁹⁵ Therefore, while Marinol may be an effective drug for some patients, economic and pharmaceutical drawbacks

185. See A.E. Chang et al., *Delta-9-Tetrahydrocannabinol as an Antiemetic in Cancer Patients Receiving High-Dose Methotrexate: A Prospective Randomized Evaluation*, 91 ANNALS OF INTERNAL MED. 819 (1979).

186. See R.S. Hepler & I.R. Frank, *Marijuana Smoking and Intraocular Pressure*, 217 JAMA 1392 (1971).

187. See D.J. Petro, *Marijuana as a Therapeutic Agent for Muscle Spasm or Spasticity*, 21 PSYCHOSOMATICS 81 (1980).

188. See Lynn Zimmer & John P. Morgan, *Exposing Marijuana Myths: A Review of Scientific Evidence* (visited Oct. 10, 1995) <http://www.pdxnorml.org/Exposing_index_1095.html>.

189. See R. Doblin & M.A.R. Kleiman, *Marijuana as an Anti-Emetic Medicine: A Survey of Oncologists' Attitudes and Experiences*, 19 J. OF CLINICAL ONCOLOGY 1275, 1285 (1991).

190. An anti-emetic is a substance that decreases vomiting. See Zimmer & Morgan, *supra* note 188.

191. See *id.*

192. See *id.*

193. See *id.*

194. See *id.*

195. See *id.*

greatly limit its utility. By permitting the therapeutic use of Marinol, the government has implicitly conceded that THC is a medically effective drug. Allowing patients to smoke the natural plant allows them to ingest the medically useful substance, THC, in a more efficient, and in some cases, more medically practical form.¹⁹⁶ The following analysis of the DEA's five factors in turn indicates the medical utility of marijuana.

1. *Known and Reproducible Drug Chemistry*

THC is the principal active component in marijuana, but there may also be other active compounds in cannabis that produce psychoactive effects.¹⁹⁷ In fact, at least sixty other cannabinoids have been isolated and identified.¹⁹⁸ Scientists can identify and synthesize the chemical characteristics and structure of THC.¹⁹⁹ The pharmacokinetics, receptor pathways, and receptor sites in the brain have been identified.²⁰⁰ These findings produce a complete picture of the biochemistry and activity in the brain of marijuana, meaning that the chemistry of the drug is known and reproducible.

2. *Adequate Safety Studies*

Numerous studies exist that examine the effects of THC on the brain. Early studies in monkeys indicated that THC caused structural changes in the hippocampus, a brain region important in learning and memory.²⁰¹ However, the monkeys in those studies ingested massive doses of THC, up to 200 times the psychoactive dose in humans.²⁰² Later studies administering 100 times the human dose failed to reveal any damage.²⁰³ Studies testing cognitive functions in humans in-

196. However, some argue that there may be other psychoactive compounds in the plant that have not yet been isolated. See National Institutes of Health, *Workshop on the Medical Utility of Marijuana* (visited Jan. 19, 1999) <<http://www.health.org/pubs/qdocs/marij/medicalmarijuana.htm>>. If this is so, the efficacy of the natural form may be greater due not only to the form of ingestion, but also to these other compounds.

197. See National Institutes of Health, *supra* note 196.

198. See Smith, *supra* note 47 at 128.

199. See *id.* at 128-29.

200. See *id.* at 129.

201. See Zimmer & Morgan, *supra* note 188.

202. See *id.*

203. See *id.*; see also W. Slikker et al., *Behavioral, Neurochemical, and Neurohistological Effects of Chronic Marijuana Smoke Exposure in the Nonhuman*

dicade that marijuana does not affect the retrieval of information learned previously.²⁰⁴ However, evidence suggests that marijuana in high doses may interfere with the ability to transfer new information into long-term memory.²⁰⁵ These results indicate that adequate safety studies exist.

3. *Adequate and Well-Controlled Studies Proving Efficacy*

a. *Hurdles to Scientific Studies of the Efficacy of Marijuana*

Several challenges exist in conducting a well-controlled study of marijuana and its therapeutic effects. First, many previous studies reflect biased results. The sponsors were often either the federal government or private organizations whose exclusive purpose was to either challenge or support the current legal status of marijuana. Second, there are difficulties related to marijuana as an inhalant including variability of dose, respiratory effects of smoking, and exposure to other chemicals present in the Cannabis plant.²⁰⁶

Another issue contributing to difficulties in researching marijuana is its Schedule I status.²⁰⁷ Researchers are "uniformly pessimistic with regard to human studies ever proceeding with Schedule I compounds."²⁰⁸ In addition, private researchers cannot grow marijuana for research.²⁰⁹ The only legal producer of marijuana in the United States is the University of Mississippi, under an exclusive contract with the National Institute of Drug Abuse ("NIDA").²¹⁰ The Compas-

Primate, in MARIJUANA/CANNABINOIDS NEUROBIOLOGY AND NEUROPHYSIOLOGY 219-74 (L. Murphy & A. Bartke eds., 1992) (discussing study where rhesus monkeys were exposed to inhalation of equivalent of four or five marijuana cigarettes per day for one year and no change in brain structure resulted).

204. See Zimmer & Morgan, *supra* note 188.

205. See *id.*

206. See U.S. Department of Health & Human Services, *Investigating Possible Medical Uses of Marijuana* (last modified Oct. 8, 1997) <<http://www.waisgate.hhs.gov/cgi-bin/waisgate>>.

207. See 21 U.S.C. § 823 (1994).

208. Strassman, *supra* note 2, at 30.

209. See Alice Mead, *Proposition 215: A Dilemma*, 30(2) J. OF PSYCHOACTIVE DRUGS 149, 150 (1998).

210. See *id.*

sionate Investigative New Drug ("IND") Program,²¹¹ to which the University of Mississippi supplies marijuana, has the potential to perform a long-term, controlled study. Yet, even this program has not evaluated the effectiveness of marijuana.²¹² Researchers must obtain approval for the marijuana directly from the NIDA.²¹³ Therefore, even an FDA-approved researcher may still be unable to gain approval from NIDA to conduct research.²¹⁴

Research with animals is less difficult. However, the DEA requires storage and disposal facilities, as well as assurance that handlers of the substance do not have a criminal record.²¹⁵ Despite these obstacles, several studies show the efficacy of marijuana in regards to analgesic effects, treatment of AIDS wasting syndrome, chemotherapy-induced nausea and vomiting, and glaucoma.

b. *Analgesic Effects*

In a 1975 study at the Departments of Psychiatry and Medicine at the University of Iowa College of Medicine, scientists demonstrated the analgesic effects of THC in patients with cancer pain.²¹⁶ The study compared the pain reduction effects of codeine and THC, concluding that the analgesic effect of THC developed gradually and was prolonged as compared to codeine.²¹⁷ The study found negative side effects in some patients,²¹⁸ but these side effects were found at dosages (ten to twenty milligrams) far greater than an average smoker consumes (the amount of THC absorbed from smoking one marijuana cigarette is four-tenths to ten milli-

211. The IND program was set up in the mid-1970s to provide select patients with marijuana for therapeutic use. See Abbie Crites-Leoni, *Medicinal Use of Marijuana: Is the Debate a Smoke Screen for Movement Toward Legalization?*, 19 J. LEGAL MED. 273, 277 (1998).

212. See *id.* at 278. Although the program was discontinued, eight patients were allowed to continue their use through the University of Mississippi in Oxford. See *id.* Physicians' reports are only used to determine whether or not the patients should continue to use marijuana, not for evaluative data. See *id.*; ROBERT C. RANDALL & ALICE M. O'LEARY, MARIJUANA RX: THE PATIENTS' FIGHT FOR MEDICINAL POT (1998) (discussing one man's personal history of his involvement in the program).

213. See Crites-Leoni, *supra* note 211, at 278.

214. See *id.*

215. See Strassman, *supra* note 2, at 31.

216. See Noyes, Jr. et al., *supra* note 31, at 87.

217. See *id.* at 86.

218. See *id.*

grams²¹⁹).

c. *Treatment of AIDS Wasting Syndrome*

Symptoms of AIDS wasting syndrome include an involuntary weight loss of at least ten percent with chronic diarrhea, weakness, or fever for thirty days or more, in the absence of other illnesses contributing to the weight loss.²²⁰ The severity of the syndrome is pronounced because weight loss is an independent predictor of short-term survival in AIDS patients.²²¹ Although there is a lack of published data on marijuana usage in AIDS patients with wasting syndrome, data from placebo-controlled, single-dose studies, and chronic dosing in normal subjects indicates that smoked marijuana stimulates appetite and increases caloric intake.²²²

d. *Treatment of Chemotherapy-Induced Nausea and Vomiting*

THC reduces the number of retching and vomiting episodes, the degree and duration of nausea, and the volume of emesis in cancer patients undergoing chemotherapy.²²³ Reliable studies indicate that smoked marijuana yielded higher plasma concentrations of THC than orally ingested THC. Further, smoked marijuana was more effective in the relief of symptoms in patients who previously smoked marijuana.²²⁴

e. *Treatment of Glaucoma*

Marijuana has been proven to exert ocular effects such as decreased intraocular pressure, pupil constriction, and conjunctival hyperemia.²²⁵ Although useful in the treatment of glaucoma, its short duration of action is a significant drawback, especially considering that standard treatments are quite effective.²²⁶ However, two promising, yet unsubstantiated, reports that nonpsychotropic cannabinoids present in marijuana exert neuroprotective effects that may be impor-

219. See JULIEN, *supra* note 24, at 338.

220. See Smith, *supra* note 47, at 129-30.

221. See *id.* at 130.

222. See *id.*

223. See *id.* at 131.

224. See *id.*

225. See *id.* at 132.

226. See Smith, *supra* note 47, at 133.

tant in delaying retinal cell death call for further study of the effects of marijuana on glaucoma patients.²²⁷

Despite the significant hurdles to reliable scientific studies of marijuana, there is a wealth of adequate and well-controlled studies demonstrating its efficacy. Mounting evidence proves its analgesic effects as well as its use in treatment of AIDS wasting syndrome, nausea and vomiting, and glaucoma.

4. *Drug Accepted by Qualified Experts*

The fourth factor the DEA identified as relevant to determine whether a drug is currently medically accepted is the drug's acceptance by qualified experts.

In presenting the pros and cons of marijuana use in treatment of a variety of illnesses and disease symptoms, the committee [American Medical Association Council on Scientific Affairs] makes clear that, as is the case with morphine and a variety of other psychoactive substances that are currently used in the practice of medicine, marijuana is both a dangerous street drug and a potentially useful medication.²²⁸

The AMA showed its support for the open discussion of marijuana as an effective therapeutic agent with patients, stating that the principles of "free disclosure apply even if the effectiveness of potential treatment or modality is not yet fully proven."²²⁹

As the debate to legalize marijuana for medicinal purposes heats up, an increasing number of physicians and biomedical experts criticize the federal classification of marijuana. A commentary in the *Journal of the American Medical Association* stated: "It is time for physicians to acknowledge more openly that the present classification is scientifically, legally and morally wrong."²³⁰ The editor-in-chief of the *New England Journal of Medicine* expressed his belief that the

227. *See id.*

228. David E. Smith et al., *Editor's Introduction*, 30(2) J. PSYCHOACTIVE DRUGS 124 (1998).

229. David E. Smith, *Review of the American Association Council on Scientific Affairs Report on Medical Marijuana*, 30(2) J. PSYCHOACTIVE DRUGS 128 (1998).

230. L. Grinspoon & J. Bakalar, *Marihuana as Medicine: A Plea For Reconsideration (Commentary)*, 273(23) JAMA 1876 (1995).

current federal prohibition of marijuana is "misguided, heavy-handed, and inhumane."²³¹

When the primary professional organization of American physicians and many individual doctors publicly state that marijuana has characteristics of a drug that should not be restricted to Schedule I status, it is safe to say that it is accepted by qualified experts.

5. *Scientific Evidence Widely Available*

The final factor of the DEA test for medical acceptance of marijuana, the availability of scientific evidence, clearly favors finding marijuana medically accepted. "The issue of whether marijuana has medicinal benefits no longer seems to be in question. Hundreds of scientific studies and thousands of testimonials from patients have established marijuana's effectiveness."²³² The only limit on the availability of scientific evidence relates to the need for more research concerning the therapeutic uses of marijuana.²³³

An objective evaluation of the DEA's five factors indicates the medical utility of marijuana. The greatest drawback is the limited research. However, the majority of the existing research, which is certainly not minimal, proves the safe, reliable, medical use of marijuana.

B. *Abuse Potential*

Merriam Webster's Collegiate Dictionary defines abuse as "an improper or excessive use or treatment," for example, the misuse of a drug.²³⁴ Although this is an ill-defined term, a drug's tolerance and addictive capacity define its potential for abuse. Three factors usually determine drug dependence: (1) preoccupation with the acquisition of the drug; (2) compulsive use of the drug; and (3) relapse to, or recurrent use of, the drug.²³⁵ These factors are not usually found with marijuana use alone, but are more common with polydrug dependence.²³⁶

231. Jerome Kassirer, *Editorial: Federal Foolishness and Marijuana*, 336 (Jan.) NEW ENGLAND J. MED. 366 (1997).

232. Harvey W. Feldman & Jerry Mandel, *Providing Medical Marijuana: The Importance of Cannabis Clubs*, 30(2) J. PSYCHOACTIVE DRUGS 179 (1998).

233. See discussion *supra* Part IV.A.3.a.

234. MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 5 (10th ed. 1993).

235. See JULIEN, *supra* note 24, at 350.

236. See *id.*

Humans develop a tolerance to marijuana,²³⁷ including a tolerance to the effects of marijuana.²³⁸ Studies from the 1980s and the early 1990s indicated a physical dependence upon marijuana and a resulting withdrawal syndrome.²³⁹ However, studies since the 1990s indicate otherwise.²⁴⁰ Any physical dependence that may occur results in only a mild withdrawal syndrome consisting of irritability, restlessness, nervousness, decreased appetite, weight loss, insomnia, rebound increase in REM sleep, tremor chills, and increased body temperature. If this withdrawal syndrome occurs, it lasts only four to five days.²⁴¹ Such a mild withdrawal syndrome indicates limited possibility for physical addiction.

There may also be limited potential for psychological dependence on marijuana. Studies show that marijuana activates the brain's central reward systems,²⁴² which usually indicates and characterizes drugs of compulsive abuse and psychological dependence.²⁴³ However, an almost universal predictor of psychological dependence is whether an animal will self-administer the drug when given free access, which does not occur with products containing THC.²⁴⁴ With limited potential for physical and psychological dependence, rescheduling marijuana appears appropriate.

C. *Safety Under Medical Supervision*

Because of the unlikelihood of negative physical reactions to marijuana, there is a high safety index when taken under medical supervision.²⁴⁵ After the passage of Proposition 215 in California,²⁴⁶ the California Society of Addiction Medicine

237. Physical tolerance has been shown by cannabinoid receptor down-regulation. See F. Rodrigues de Fonseca, *Down-regulation of Rat Brain Cannabinoid Binding Sites After Chronic delta-9-Tetrahydrocannabinol*, 47 PHARMACOLOGY, BIOCHEMISTRY, BEHAVIOR 33-40 (1994).

238. See JULIEN, *supra* note 24, at 349.

239. See Timmen L. Cermak, *Addiction Medicine Perspective on the Medicalization of Marijuana*, 30(2) J. PSYCHOACTIVE DRUGS 155, 159 (1998) (discussing studies from this period).

240. See *supra* notes 62-65 and accompanying text.

241. See JULIEN, *supra* note 24, at 349.

242. See E.L. Gardner & J.H. Lowinson, *Marijuana's Interaction with Brain Reward Systems: Update 1991*, 40 PHARMACOLOGY, BIOCHEMISTRY, BEHAVIOR 571 (1991).

243. See JULIEN, *supra* note 24, at 349.

244. See Abood & Martin, *supra* note 63, at 202.

245. See *generally supra* notes 66-71 and accompanying text.

246. See CAL. HEALTH & SAFETY CODE § 11362.5 (West Supp. 1998). In

("CSAM") set standards for prescribing marijuana for medicinal uses.²⁴⁷ These standards include the necessary information a physician must share with a patient receiving a prescription for marijuana.²⁴⁸ The CSAM believes that there is a limited abuse potential of marijuana, but states that these "known hazards of marijuana simply require [guidelines] to minimize potential negative effects on individuals for whom medical use is justified and to minimize legitimate public health risks."²⁴⁹ These state measures have actually put into practice marijuana's safety under medical supervision.

The scientific data objectively shows that marijuana has currently accepted medical uses, that its potential for abuse does not place it in the category of a Schedule I substance, and that there is a great likelihood of safety under medical supervision.

V. PROPOSAL

The current placement of marijuana in Schedule I suggests it has a high potential for abuse, no currently accepted medical use in the United States, and a lack of safety for use under medical supervision.²⁵⁰ The review of currently available medical evidence in Part IV of this comment indicates that this classification is inappropriate.²⁵¹

A petition for the rescheduling of marijuana should include the current medical and scientific data, while avoiding the mistakes made in past efforts to reschedule.²⁵² For example, challenging the constitutionality of the Controlled Substances Act has failed time and again.²⁵³ The petition to reschedule filed by NORML in the early 1970s and pursued until 1994 challenged only the "currently accepted medical use" prong of the DEA test.²⁵⁴ A current petition should use

1996, 55% of the California voters approved an initiative to legalize marijuana for medical purposes. The statute allows marijuana use if "recommended by a physician who has determined the person's health would benefit." Cermak, *supra* note 239, at 155. Of course, California's initiative, and similar provisions in other states as well, do not circumscribe the federal CSA.

247. See Cermak, *supra* note 239, at 157.

248. See *id.* at 158.

249. *Id.* at 160.

250. See 21 U.S.C. § 812(b)(1) (1994).

251. See *supra* Part IV.

252. See *supra* Part II.E.

253. See *supra* Part II.E.1.

254. See *supra* Part II.E.2.

scientific data to prove that marijuana (1) has accepted medical uses, (2) has low abuse potential, and (3) is safe to use under medical supervision. Specifically, the petition should call for marijuana to be rescheduled to Schedule II at the very least, but more accurately to Schedule III.

The first factor to be considered is the medical utility of marijuana, taking into account the five factors that the DEA identified as pertinent.²⁵⁵ Marijuana has a known and reproducible drug chemistry.²⁵⁶ Under the "adequate safety studies" prong, there are no known dangerous physical reactions to marijuana²⁵⁷ and studies indicate no long-term damage in the brain.²⁵⁸ Controlled studies demonstrate the efficacy of marijuana (the third prong) in its analgesic effects, treatment of AIDS wasting syndrome, treatment of chemotherapy-induced nausea and vomiting, and treatment of glaucoma.²⁵⁹ In denying a therapeutic drug, the government prevents patients from receiving medication that may aid their treatment, relieve their pain, or, for some patients, be the only effective treatment.

Numerous qualified experts indicate that marijuana is accepted as a medically useful drug.²⁶⁰ There is a great deal of scientific research regarding the therapeutic role of marijuana.²⁶¹

Finally, the last two elements of the three-prong test to reschedule are met. Studies indicate that marijuana has a limited potential for psychological and physical dependence, but that humans develop a tolerance to the drug.²⁶² There is only a moderate abuse potential for marijuana, especially when compared with other Schedule I drugs well-known for their abuse potential.²⁶³ Marijuana can also be administered safely under medical supervision.²⁶⁴

These studies preliminarily indicate that the proper clas-

255. See *supra* note 174.

256. See *supra* Part IV.A.1.

257. See *supra* notes 66–71 and accompanying text.

258. See *supra* text accompanying notes 201–05.

259. See discussion *supra* Part IV.A.3.b–e.

260. See discussion *supra* Part IV.A.4.

261. See discussion *supra* Part IV.A.5.

262. See discussion *supra* Part IV.B.

263. See *supra* note 107.

264. See discussion *supra* Part IV.C.

sification of marijuana is under Schedule III.²⁶⁵ However, without more extensive studies, the lack of conclusiveness of the results may prevent Schedule III status. In such a case, classification as Schedule II until further studies are completed is appropriate. The most compelling argument in favor of Schedule II status is the almost conclusive evidence that there is no high potential for abuse of marijuana.

Another important factor to consider regarding rescheduling is that moving marijuana to Schedule II or Schedule III greatly increases access to the drug for research. Greater access allows for quicker drug development with cannabinoids. Since marijuana is only useful as an inhalant for some illnesses (such as AIDS wasting syndrome), studies qualifying its efficacy because of the drawbacks of smoking require a second look. Products that vaporize marijuana plants so as to minimize the effects of smoking are being developed and used.²⁶⁶

An alternative to rescheduling marijuana under Schedules II or III is to classify marijuana in its own schedule. Because it is relatively easy to grow and harvest, individuals can easily produce their own marijuana. Instead of spending time and money prosecuting such individuals, especially those growing marijuana for personal medical use, the government should create a system of regulation permitting certain growth of the drug. Marijuana's unique properties, particularly the impossibility of overdosing, may make a new classification most appropriate. More research must be conducted on isolated cannabinoids and differing concentrations in various strains of the plant before implementing a schedule that permits individual growers to harvest the plant.

VI. CONCLUSION

Despite classification as a Schedule I controlled substance for the past twenty-eight years, marijuana is not a drug with a high potential for abuse, no currently accepted

265. See 21 U.S.C. § 812(b)(3) (1994). A drug is placed on Schedule III if there is a lower potential for abuse than the drugs in Schedule I and II, there is a currently accepted medical use, and abuse of the drug may lead to moderate or low physical dependence or high psychological dependence. See *id.*

266. See *Welcome to 4THC.com* (visited May 19, 2000) <<http://www.4thc.com>>; *Welcome to www.vaporizer.com* (visited May 19, 2000) <<http://www.vaporizer.com>>.

medical use, or a lack of safety under medical supervision.²⁶⁷ Although numerous unsuccessful attacks on this status have taken place in the past,²⁶⁸ the time has come to recognize the mounting research supporting the transfer of schedules. The data objectively indicates that marijuana should be a Schedule III substance. Since the government most likely will not acquiesce to such a transfer, a transfer to Schedule II appears more likely. Especially in light of the recent Institute of Medicine Report, marijuana's time in Schedule I is up.

267. See discussion *supra* Part IV.

268. See discussion *supra* Part II.E.
