



Current Trends in the Use of *Cannabis sativa*: Beyond Recreational and Medicinal Applications

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Abstract

Cannabis sativa finds application in the medical field as an opioid (medical marijuana) and as a recreational drug despite the fact that it is a prohibited drug substance in many countries. Currently, there are reports on the increasing trends in the number of deaths associated with the use of marijuana. Regardless of these dangers, some countries across the world have legalized the sale and use of marijuana for recreational and medicinal purposes. For these reasons, this review seeks to explore the emerging trends through which marijuana is consumed and the chemicals produced in the course of its use. Furthermore, the use of *Cannabis sativa* as medicine especially in the management of emerging diseases such a Corona virus disease-2019 (COVID-19) and the perceived harms have been reviewed. Relevant literature was identified from database search published between the period 2012 and 2020 in PubMed, Crossref, Google scholar, Cochrane and Web of Science. The articles were considered relevant if they addressed marijuana (*Cannabis sativa*) use, its impacts on users and non-users, carcinogenicity, medicinal value and COVID-19 management. A number of methods by which marijuana is used have been identified with each method producing different results among users. The chemicals released during smoking of marijuana and their carcinogenic potential and health effects are reported in this work. Further, *Cannabis sativa* has found significant use in the management of cancer and human immunodeficiency virus (HIV/ AIDS) to alleviate pain and improve appetite, respectively. Although marijuana is regarded as a prohibited and toxic drug substance, there is limited documentation in literature that extensively reports on its toxicological mechanisms especially its role as a cancer causing agent. On

the contrary, most scientific studies have reported its use for medical reasons. Accordingly, there is need for further research on cannabis application as a medicinal drug, investigation on its possibility in the managing of the severe acute respiratory syndrome corona virus-2 (SARS-Cov-2) and its epidemiological concerns. Campaigns for the legalization of cannabis for use in clinical medicine are fundamentally recommended but must take into account possible toxicological concerns, health ethics and psychotic problems.

Subject Areas

Environmental Health/Public Health

Keywords

Medical Marijuana, Carcinogenicity, Cannabis, Legalization, SARS-Cov-2 Management

1. Introduction

The exponential desire to legalize *Cannabis sativa* in many countries is an interesting observation that cannot be underestimated. The proponents pushing for the legalization of this drug may have genuine concerns but authorities in government must ensure the drug is prescribed by a competent medical practitioner. The grave effects of its unregulated use may outweigh its benefits. Nonetheless, responsible use of this drug may save lives because of its known potency against viral diseases. Generally, Marijuana is the second most widely and illegally abused drug substance across the world after tobacco. This mainly because of the psychoactive effects induced by delta-9-tetrahydrocannabinol (Δ -9-THC) chemical, indicated as **1** in **Figure 1**, which is obtained from dried leaves, stems, seeds and flowers of the *Cannabis sativa* hemp plant [1]. The complexity of *Cannabis sativa* plant is defined by the presence of various compounds that induce psychoactive action on individuals who consume it.

Currently, over 500 chemical compounds have been identified in marijuana with over 60 cannabinoids which generate more than 2000 compounds in marijuana smoke through a series of pyrolysis reactions [1] [2]. With an exception of the main psychoactive alkaloid in cannabis, other cannabinoids such as cannabidiol (CBD), delta-8-tetrahydrocannabinol (d-8-THC) and cannabinol, designated as **2**, **3** and **4** in **Figure 1**, contribute to its pharmacological effects [3]. The introduction of tetrahydrocannabinol (THC) into the biological system induces a number of effects characterized by alterations in memory, movement, mood, perception and cognition and in some cases increased dopamine release that ultimately produces euphoric sensations and anxiolytic effects [4]. Cannabidiol forms almost 40% of the cannabis extracts from the *Cannabis sativa* plant and is mainly found in seeds, stalks and flowers of marijuana plant and offers antipsychotic