
MEDICINAL MARIJUANA

BOTANICAL BACKGROUND, CULTURAL HISTORY, AND MISUSE OF MARIJUANA (*CANNABIS SPP.*)

A person who walks across a lawn, cultivates a garden, or forages in forests and water is engaging with the plant world of trees, flowers, grasses, fungi, fruits, food, and medicinal plants. Although marijuana (*Cannabis spp.*) is but one of thousands of types of plants, it is a common topic of private and public conversations in the early 21st century. Furthermore, marijuana is perhaps one of the most praised and condemned plants in history. This module explores the medicinal qualities of marijuana and its constituents, as well as the cultural history that continues to grow with the plant and its role in forming U.S. drug enforcement policy. This module also introduces some of the suggested reasons for the resurgence of interest in marijuana among Americans seeking healing, relief, and hope and the reversal from many in the public from demanding prohibition to lobbying for legalization (McKenna, 1992, and Barber 2018). Oral healthcare professionals (OHCPs) who are engaged in shared decision making with people in their care can employ the context provided by cultural history, including botanical science and clinical trial data.

Marijuana's history in treating various conditions is long and successful. It is not the newest drug on the market, though new drugs have been manufactured from its constituents. Marijuana contains chemical compounds and nutrients that can affect changes in people's physical, emotional, mental, and spiritual health and well-being. Whole marijuana leaf or seed is what people commonly use, although more pharmaceutically-elegant formulations are becoming available on the American pharmacopeia for medical use (Mathias, 2018). Marijuana has retained its culture of traditional use referred to by scientists as "crude" medicine when a plant is used in a

form close to its natural state. Some might think of the term “crude medicine” as suggesting that the medicine is simple, but medicinal plants, including marijuana, are rarely simple. When studied more closely, they reveal themselves to be replete with hundreds of chemical constituents, in this case cannabinoids, many of which can induce powerful biochemical changes. Although this module does include specific botanical and pharmaceutical data, and known mechanisms of action of marijuana, evidence derived from historical human use provides OHCPs with insight into treating patients either considering the use of marijuana, or already using it.

BOTANICAL BACKGROUND

Marijuana (*Cannabis spp.*) is a strong plant with stems that grow easily from 3 to 20 feet in nearly every climatic condition. The leaves are palmate (they look like the palm of a human hand), each with five to seven lanceolate (long and pointed) leaflets. The plant is native to Northern India and Southern Siberia and is a member of the small Cannabaceae family of plants. One other medicinal plant in the Cannabaceae family is hops (*Humulus lupulus*), a plant employed in the brewing of beer. Carl Linnaeus, the 18th century Swedish botanist and physician who created a system for naming plants (The Linnean Society, 2018), named marijuana *Cannabis sativa* in 1753. Marijuana that is cultivated in a dry, hot climate, produces resin in greater quantities, along with fiber that is poor for commercial purposes. In countries with milder, humid weather, the hemp fiber is stronger and more durable and less resin is produced (Abel, 1980). Because of the historical emphasis on hemp cultivation for quality fiber, the intoxicating effects of marijuana were largely unknown in America until the 19th century. Today, however, the leaves, seeds, flowers, and stems, along with the resin that oozes from the stems and leaves of the plant, are used medicinally, recreationally, and in ritual. (See Table 1.) When marijuana is harvested for fiber or its leaf, it is cut close to the ground with a special sickle. Harvesting resin is more painstaking. The resin is known as “hashish.” *Cannabis indica* is the species typically grown for its higher resin content for the hashish market. A late 19th-century analysis described the leaves as containing chlorophyll, a volatile oil, gummy extractive, a bitter body, albumen, lignin, sugar, and salts such as potassium nitrate, silica, and phosphates (Felter & Lloyd, 1898/1983). Approximately 60 cannabinoids have been identified in marijuana, but delta-9-tetrahydrocannabinol, or “THC,” is the main

psychoactive component.

Smoking marijuana has a paradoxical effect on mood: It can be stimulating or sedating. This type of effect is not typical of central nervous system stimulants or depressants, but it is more consistent with the effects of psychedelic drugs such as lysergic acid diethylamide (LSD; Block, Erwin, Farinpour, & Braverman, 1998). Marijuana plants are dioecious, which means that there are distinctly male and female plants. Growers focus on the identification, care, and propagation of female plants because females produce more resin and flower later (Abel, 1980). “Not only do males not produce a usable drug, but if pollen from male plants reaches females, the females will begin to ‘set’ seed and will cease their production of resin” (McKenna, 1992, p. 154). The intoxicating resin is secreted by glandular hairs located around the flowers.

Is There a Difference Between Marijuana and Hemp?

Marijuana is the most used common name for *Cannabis sativa* in the West; however, there are numerous others. As Terence McKenna (1992, p. 150) comments, “The thousands of names by which cannabis is known in hundreds of languages are testament to its cultural history and ubiquity.” There is a significant difference, however, between plants known by the common names “marijuana” and “hemp.” Although they are both *Cannabis sativa*, hemp is a different strain of marijuana that is low in THC. Marijuana (and hemp) seeds contain no THC, and can thus be sold in the market as food; but during processing it is possible for trace amounts of THC from the leaf to stick to the outer husk of the seed in an amount that is measurable upon analysis. Hemp products on the market cannot have THC. Hemp seed, which is used in producing soap, lamp oil, and paint as well as food products such as oil and butter, is 31% protein after the husk is removed. It is rich in vitamins, minerals, and nutrients, such as linoleic acid (an essential fatty acid) and tocopherols (vitamin E), and the concentration of unsaturated fatty acids can exceed 90%, higher than most vegetable oils on the market, particularly the Yunma No. 1 and Bama Huoma varieties (Chen et al., 2010). Hemp seed oil is high in flavonoids, such as flavanones, flavanols, and isoflavones, which are known antioxidants (Smeriglio et al., 2016).

A common recipe for the use of hemp seed is hemp porridge. The hemp plant is best known, however, for its use in fiber production, primarily of cordage for weaving and rope making. Hemp fiber, along with mulberry tree bark pulverized into pulp, was also the basis for the invention of paper traditionally ascribed to a Chinese court official, Ts'ai Lun, in AD 105. However, fragments

of paper containing hemp fiber have been found in Chinese graves dating back to the first century BC (Abel, 1980).