

## Cannabis and Hemp – a Quick Primer

Cannabis and hemp, despite being the same thing, are in fact not the same thing. Confused?

Cannabis, native to Central Asia, is the name given to a genus of plants within the family Cannabaceae. Cannabis has three recognised species, *Cannabis sativa*, *Cannabis indica*, and *Cannabis ruderalis*. Human-cultivated cannabis has uses that include industrial, recreational, and medicinal applications, spanning back many millenia.

In common modern parlance, the name cannabis has come to refer to strains of *cannabis sativa* and *cannabis indica* that are grown to produce marijuana, which is an illegal drug in most jurisdictions. These plants are also a source for a more widely accepted and growing industry based around medicinal extracts of the cannabis plant. *C. ruderalis* is not widely cultivated or generally regarded as being particularly useful for human purposes.

Industrial hemp is a sub-species of *cannabis sativa*. However, it contains only minute traces of the psychoactive compounds found in the recreational variety. It does not produce a “high” and is not of value as a recreational drug.

Industrial hemp has a myriad of very beneficial uses, including seed for food meal, oil, fibre for clothing, textiles, rope, and building materials, wood (customwood made from reconstituted hemp fibre is proving to be even more versatile and hard-wearing than its bamboo-sourced equivalent) paper, biodegradable plastics, cosmetics, biofuel, animal feed, graphene-like batteries and capacitors that exceed the performance of lithium-ion power storage cells (by orders of magnitude), and even paint and insulation.

The issue of medical cannabis is topical at this time. However the consumption of pharmaceutical products employing extracts of the cannabis plant for medical purposes, and the consumption of cannabis plant material in pursuit of a medical effect, are not the same thing.

In some jurisdictions, the use of cannabis for medicinal purposes has been decriminalised or legalised. In others, the use of certain pharmaceutical extracts of the plant has similarly been approved.

Herbal cannabis decriminalised for medicinal purposes is consumed in the same way that recreational users take the drug, usually through smoking plant material or the oil extracted from it, or through ingesting it in various suitably prepared forms.

Consuming cannabis in this way produces the same psychoactive “high” as is experienced by recreational users, whilst also delivering the pain relief and other physiological effects sought by those in search of medicinal benefits.

However, the consumption of pharmaceutical extracts of the plant, whilst providing relief from pain, and other desirable effects, does not produce the characteristic psychoactive effects experienced by recreational users.

Cannabis contains more than 100 cannabinoid compounds, but for the purposes of the comparison between medical and recreational cannabis use, two are of greatest importance, THC and CBD. THC, or tetrahydrocannabinol, is the psychoactive compound that produces the “high” sought by recreational users of the drug. THC also has proven physiological effects that may be medically desirable, as well as some which may be detrimental in some cases, particularly in terms of mental health.

CBD, or cannabidiol, also produces proven beneficial physiological effects, but does not produce a psychoactive “high”. There is considerable overlap between the physiological effects of THC and those of CBD, although CBD does not appear to pose the same risks in terms of mental health concerns.

Strains of cannabis preferred by recreational users have been selectively bred to contain proportionately greater concentrations of THC relative to CBD.

Conversely, pharmaceutical cannabis extracts contain proportionately much greater amounts of CBD than THC, and much greater than levels found naturally in herbal cannabis.

Industrial hemp is also a good source of CBD. However, CBD extracted from industrial hemp does not contain any of the other trace cannabinoids that are found in recreational (or “full-spectrum”) cannabis. How significant the synergistic effects of these trace cannabinoids are, in terms of the efficacy of various medicinal cannabis extracts, is not yet well understood.

Hemp and marijuana, being very closely related, are difficult to tell apart to the untrained observer. Pure strains of *Cannabis sativa* and *Cannabis indica* are fairly distinct, *C. sativa* being relatively skinnier and with more narrow leaves, and with a lighter, brighter green colouration, and *C. indica* being relatively fatter and with broader leaves, and having a darker green colouration. Muddying this picture somewhat is the fact that many hybrids between the two have been produced by growers of recreational cannabis.

Industrial hemp however, being a variety of *C. sativa*, is observably taller and skinnier than either, with leaves concentrated towards the top of the plant, and less well-defined flowers.

All species and varieties of cannabis are dioecious (separate male and female plants) and are wind-pollinated. However although marijuana can be pollinated by hemp, the resulting offspring are very much lower in THC than the levels sought by recreational marijuana growers. Hemp pollinated by marijuana likewise does not produce higher levels of THC than hemp-pollinated industrial hemp.

Everything industrial that can be done with industrial hemp, can also be done with full-spectrum cannabis. However, not everything that can be done with full-spectrum cannabis can also be done with industrial hemp. To my way of thinking, questions as to the legality, and/or morality, of recreational use notwithstanding, that makes the recreational variety of the plant the one offering the greatest utility.

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