[Template:About](/wiki/Template:About" \o "Template:About) [Template:Pp-move-indef](/wiki/Template:Pp-move-indef) [Template:Pp-vandalism](/wiki/Template:Pp-vandalism) [Template:Taxobox](/wiki/Template:Taxobox)

***Cannabis*** ([Template:IPAc-en](/wiki/Template:IPAc-en)) is a [genus](/wiki/Genus) of [flowering plant](/wiki/Flowering_plant) that includes three [species](/wiki/Species) (and seven [taxa](/wiki/Taxa))[[1]](#cite_note-1) or [subspecies](/wiki/Subspecies),[[2]](#cite_note-2) [*sativa*](/wiki/Cannabis_sativa), [*indica*](/wiki/Cannabis_indica), and [*ruderalis*](/wiki/Cannabis_ruderalis). The plant is [indigenous](/wiki/Indigenous_(ecology)) to [central Asia](/wiki/Central_Asia) and the [Indian subcontinent](/wiki/Indian_subcontinent).[[3]](#cite_note-3) Cannabis has long been used for [hemp](/wiki/Hemp) fibre, for [hemp oils](/wiki/Hemp_oil), [for medicinal purposes](/wiki/Medical_cannabis), and [as a recreational drug](/wiki/Cannabis_(drug)). Industrial hemp products are made from cannabis plants selected to produce an abundance of fiber. To satisfy the [UN Narcotics Convention](/wiki/Single_Convention_on_Narcotic_Drugs), some cannabis strains have been bred to produce minimal levels of [tetrahydrocannabinol](/wiki/Tetrahydrocannabinol) (THC), the principal [psychoactive constituent](/wiki/Psychoactive_drug). Many plants have been selectively bred to produce a maximum of THC ([cannabinoids](/wiki/Cannabinoid)), which is obtained by [curing](/wiki/Wikt:cure) the flowers. Various compounds, including [hashish](/wiki/Hashish) and [hash oil](/wiki/Hash_oil), are extracted from the plant.<ref name=erowid>Erowid. 2006. [Cannabis Basics](http://www.erowid.org/plants/cannabis/cannabis_basics.shtml). Retrieved on 25 February 2007</ref>

Globally, in 2013, 60,400 kilograms of cannabis [were produced legally](/wiki/Legality_of_cannabis_by_country).<ref name=UN2015>[Template:Cite book](/wiki/Template:Cite_book)</ref> In 2013 between 128 and 232 million people are thought to have used cannabis as a recreational drug (2.7% to 4.9% of the global population between the ages of 15 and 65).[[4]](#cite_note-4)

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## Description[[edit](/index.php?title=(none)&action=edit&section=1)]

[thumb|*Cannabis* growing as](/wiki/File:Cannabis_plants_in_front_of_the_Dhaulagiri_summit.jpg) [weeds](/wiki/Weed) at the foot of [Dhaulagiri](/wiki/Dhaulagiri). Cannabis is an [annual](/wiki/Annual_plant), [dioecious](/wiki/Dioecious), [flowering](/wiki/Flowering_plant) [herb](/wiki/Herb). The [leaves](/wiki/Leaf) are [palmately compound or digitate](/wiki/Leaf_shape), with [serrate](/wiki/Leaf_margin) [leaflets](/wiki/Leaflet_(botany)).[[5]](#cite_note-5) The first pair of leaves usually have a single leaflet, the number gradually increasing up to a maximum of about thirteen leaflets per leaf (usually seven or nine), depending on variety and growing conditions. At the top of a flowering plant, this number again diminishes to a single leaflet per leaf. The lower leaf pairs usually occur in an opposite [leaf arrangement](/wiki/Phyllotaxis) and the upper leaf pairs in an alternate arrangement on the main stem of a mature plant.

The leaves have a peculiar and diagnostic venation pattern that enables persons poorly familiar with the plant to distinguish a cannabis leaf from unrelated species that have confusingly similar leaves (see illustration). As is common in serrated leaves, each serration has a central vein extending to its tip. However, the serration vein originates from lower down the central vein of the leaflet, typically opposite to the position of, not the first notch down, but the next notch. This means that on its way from the midrib of the leaflet to the point of the serration, the vein serving the tip of the serration passes close by the intervening notch. Sometimes the vein will actually pass tangent to the notch, but often it will pass by at a small distance, and when that happens a spur vein (occasionally a pair of such spur veins) branches off and joins the leaf margin at the deepest point of the notch. This venation pattern varies slightly among varieties, but in general it enables one to tell *Cannabis* leaves from superficially similar leaves without difficulty and without special equipment. Tiny samples of *Cannabis* plants also can be identified with precision by microscopic examination of leaf cells and similar features, but that requires special expertise and equipment.[[6]](#cite_note-6) The plant is believed to have originated in the mountainous regions northwest of the Himalayas.[Template:Citation needed](/wiki/Template:Citation_needed) It is also known as hemp, although this term is often used to refer only to varieties of *Cannabis* cultivated for non-drug use.

### Reproduction[[edit](/index.php?title=(none)&action=edit&section=2)]

*Cannabis* normally has [imperfect](/wiki/Plant_sexuality#Terminology) [flowers](/wiki/Flowers), with [staminate](/wiki/Stamen) "male" and [pistillate](/wiki/Pistil) "female" flowers occurring on separate plants.[[7]](#cite_note-7) It is not unusual, however, for individual plants to bear both male and female flowers.[[8]](#cite_note-8) Although monoecious plants are often referred to as "hermaphrodites", true hermaphrodites (which are less common) bear staminate and pistillate structures on individual flowers, whereas monoecious plants bear male and female flowers at different locations on the same plant. Male flowers are normally borne on loose [panicles](/wiki/Panicle), and female flowers are borne on [racemes](/wiki/Raceme).[[9]](#cite_note-9) "At a very early period the Chinese recognized the *Cannabis* plant as dioecious",[[10]](#cite_note-10) and the (c. 3rd century BCE) [*Erya*](/wiki/Erya) dictionary defined *xi* [枲](/wiki/Wikt:枲) "male *Cannabis*" and *fu* [莩](/wiki/Wikt:莩) (or *ju* [苴](/wiki/Wikt:苴)) "female *Cannabis*".[[11]](#cite_note-11) All known strains of *Cannabis* are [wind-pollinated](/wiki/Anemophily)[[12]](#cite_note-12) and the fruit is an [achene](/wiki/Achene).[[13]](#cite_note-13) Most strains of *Cannabis* are [short day plants](/wiki/Photoperiodism),<ref name=clarke1991a/> with the possible exception of *C. sativa* subsp. *sativa* var. *spontanea* (= *C. ruderalis*), which is commonly described as "auto-flowering" and may be [day-neutral](/wiki/Photoperiodism).

### Biochemistry and drugs[[edit](/index.php?title=(none)&action=edit&section=3)]

*Cannabis* plants produce a group of chemicals called cannabinoids, which produce mental and physical effects when consumed.

[Cannabinoids](/wiki/Cannabinoids), [terpenoids](/wiki/Terpenoids), and other compounds are secreted by glandular [trichomes](/wiki/Trichomes) that occur most abundantly on the floral [calyxes](/wiki/Sepal) and [bracts](/wiki/Bract) of female plants.[[14]](#cite_note-14) As a drug it usually comes in the form of dried flower buds ([marijuana](/wiki/Cannabis_(drug)#marijuana)), [resin](/wiki/Resin) ([hashish](/wiki/Hashish)), or various extracts collectively known as [hashish oil](/wiki/Hashish_oil).<ref name=erowid/> In the early 20th century, it became illegal in most of the world to cultivate or possess *Cannabis* for sale or personal use. <gallery widths="180px" heights="120px" perrow="3"> File:Cannabis sativa radix profile.png|Root system side view File:Cannabis sativa radix topview.png|Root system top view File:Cannabis hemp sativa (left) indica (right).png|Micrograph *C. sativa* (left), *C. indica* (right) </gallery>

### Chromosomes and genome[[edit](/index.php?title=(none)&action=edit&section=4)]

*Cannabis*, like many organisms, is [diploid](/wiki/Ploidy), having a [chromosome](/wiki/Chromosome) complement of 2n=20, although polyploid individuals have been artificially produced.[[15]](#cite_note-15) The first genome sequence of *Cannabis*, which is estimated to be 820 [Mb](/wiki/Megabase) in size, was published in 2011 by a team of Canadian scientists.[[16]](#cite_note-16)

### Taxonomy[[edit](/index.php?title=(none)&action=edit&section=5)]

[thumb|Underside of](/wiki/File:Cannabis_sativa_leaf_diagnostic_venation_2012_01_23_0829_c.jpg) [*Cannabis sativa*](/wiki/Cannabis_sativa) leaf, showing diagnostic venation The genus *Cannabis* was formerly placed in the [Nettle](/wiki/Urtica) ([Urticaceae](/wiki/Urticaceae)) or [Mulberry](/wiki/Mulberry) ([Moraceae](/wiki/Moraceae)) family, and later, along with the [*Humulus*](/wiki/Humulus) genus ([hops](/wiki/Hops)), in a separate family, the [Hemp](/wiki/Hemp) family (Cannabaceae [sensu stricto](/wiki/Sensu_stricto)).<ref name=schultes2001a>Schultes, R. E., A. Hofmann, and C. Rätsch. 2001. The nectar of delight. In: *Plants of the Gods* 2nd ed., Healing Arts Press, Rochester, Vermont, pp. 92–101. ISBN 0-89281-979-0</ref> Recent [phylogenetic](/wiki/Phylogenetic) studies based on [cpDNA](/wiki/CpDNA) [restriction site](/wiki/Restriction_site) analysis and [gene sequencing](/wiki/DNA_sequencing) strongly suggest that the Cannabaceae sensu stricto arose from within the former Celtidaceae family, and that the two families should be merged to form a single [monophyletic](/wiki/Monophyletic) family, the [Cannabaceae](/wiki/Cannabaceae) [sensu lato](/wiki/Sensu_lato).<ref name=song2001>[Template:Cite journal](/wiki/Template:Cite_journal)</ref><ref name=sytsma2002>[Template:Cite journal](/wiki/Template:Cite_journal)</ref>

Various types of *Cannabis* have been described, and variously classified as [species](/wiki/Species), [subspecies](/wiki/Subspecies), or [varieties](/wiki/Variety_(biology)):[[17]](#cite_note-17)\* plants cultivated for fiber and seed production, described as low-intoxicant, non-drug, or fiber types.

* plants cultivated for drug production, described as high-intoxicant or drug types.
* escaped, hybridised, or wild forms of either of the above types.

*Cannabis* plants produce a unique family of terpeno-phenolic compounds called cannabinoids, which produce the "high" one experiences from consuming marijuana. There are 483 identifiable chemical constituents known to exist in the cannabis plant,[[18]](#cite_note-18) and at least 85 different cannabinoids have been isolated from the plant.[[19]](#cite_note-19) The two cannabinoids usually produced in greatest abundance are cannabidiol ([CBD](/wiki/Cannabidiol)) and/or Δ9-tetrahydrocannabinol ([THC](/wiki/Tetrahydrocannabinol)), but only THC is psychoactive.[[20]](#cite_note-20) Since the early 1970s, *Cannabis* plants have been categorized by their chemical [phenotype](/wiki/Phenotype) or "chemotype", based on the overall amount of THC produced, and on the ratio of THC to CBD.[[21]](#cite_note-21) Although overall [cannabinoid](/wiki/Cannabinoid) production is influenced by environmental factors, the THC/CBD ratio is genetically determined and remains fixed throughout the life of a plant.[[22]](#cite_note-22) Non-drug plants produce relatively low levels of THC and high levels of CBD, while drug plants produce high levels of THC and low levels of CBD. When plants of these two chemotypes cross-pollinate, the plants in the first filial (F1) generation have an intermediate chemotype and produce similar amounts of CBD and THC. Female plants of this chemotype may produce enough THC to be utilized for drug production.[[23]](#cite_note-23) [thumb|Top of *Cannabis* plant in vegetative growth stage](/wiki/File:Cannabis-vegetative-growth-00003.jpg) Whether the drug and non-drug, cultivated and wild types of *Cannabis* constitute a single, highly variable species, or the genus is polytypic with more than one species, has been a subject of debate for well over two centuries. This is a contentious issue because there is no universally accepted definition of a [species](/wiki/Species).[[24]](#cite_note-24) One widely applied criterion for species recognition is that species are "groups of actually or potentially interbreeding natural populations which are reproductively isolated from other such groups."[[25]](#cite_note-25) Populations that are physiologically capable of interbreeding, but morphologically or genetically divergent and isolated by geography or ecology, are sometimes considered to be separate species.<ref name=glossary/> [Physiological barriers to reproduction](/wiki/Reproductive_isolation) are not known to occur within *Cannabis*, and plants from widely divergent sources are interfertile.[[15]](#cite_note-15) However, physical barriers to gene exchange (such as the Himalayan mountain range) might have enabled *Cannabis* gene pools to diverge before the onset of human intervention, resulting in speciation.[[26]](#cite_note-26) It remains controversial whether sufficient morphological and [genetic divergence](/wiki/Genetic_divergence) occurs within the genus as a result of geographical or ecological isolation to justify recognition of more than one species.[[27]](#cite_note-27)[[28]](#cite_note-28)[[29]](#cite_note-29)

### History of cannabis[[edit](/index.php?title=(none)&action=edit&section=6)]

*Cannabis sativa* appears naturally in many tropical and humid parts of the world. Its use as a mind-altering drug has been documented by archaeological finds in prehistoric societies in Euro-Asia and Africa.[[30]](#cite_note-30) The oldest written record of cannabis usage is the Greek historian [Herodotus's](/wiki/Herodotus) reference to the central Eurasian [Scythians](/wiki/Scythians) taking cannabis steam baths.[[31]](#cite_note-31) His (c. 440 BCE) [*Histories*](/wiki/Histories_(Herodotus)) records, "The Scythians, as I said, take some of this hemp-seed [presumably, flowers], and, creeping under the felt coverings, throw it upon the red-hot stones; immediately it smokes, and gives out such a vapour as no Grecian vapour-bath can exceed; the Scyths, delighted, shout for joy."[[32]](#cite_note-32) Classical Greeks and Romans were using cannabis, while in the Middle East, use spread throughout the Islamic empire to North Africa. In 1545 cannabis spread to the western hemisphere where Spaniards imported it to Chile for its use as fiber. In North America cannabis, in the form of hemp, was grown for use in rope, clothing and paper.[[33]](#cite_note-33)[[34]](#cite_note-34)[[35]](#cite_note-35)[[36]](#cite_note-36)

### Early classifications[[edit](/index.php?title=(none)&action=edit&section=7)]

[thumb|upright|Relative size of varieties of *Cannabis*](/wiki/File:Cannab2_new.png)

The *Cannabis* genus was first [classified](/wiki/Scientific_classification) using the "modern" system of taxonomic [nomenclature](/wiki/Binomial_nomenclature) by [Carl Linnaeus](/wiki/Carl_Linnaeus) in 1753, who devised the system still in use for the naming of species.[[37]](#cite_note-37) He considered the genus to be monotypic, having just a single species that he named *Cannabis sativa* L. (L. stands for Linnaeus, and indicates the authority who first named the species). Linnaeus was familiar with European hemp, which was widely cultivated at the time. In 1785, noted evolutionary biologist [Jean-Baptiste de Lamarck](/wiki/Jean-Baptiste_de_Lamarck) published a description of a second species of *Cannabis*, which he named *Cannabis indica* Lam.[[38]](#cite_note-38) Lamarck based his description of the newly named species on plant specimens collected in India. He described *C. indica* as having poorer fiber quality than *C. sativa*, but greater utility as an [inebriant](/wiki/Psychoactive_drug). Additional *Cannabis* species were proposed in the 19th century, including strains from China and Vietnam (Indo-China) assigned the names *Cannabis chinensis* Delile, and *Cannabis gigantea* Delile ex Vilmorin.[[39]](#cite_note-39) However, many taxonomists found these putative species difficult to distinguish. In the early 20th century, the single-species concept was still widely accepted, except in the [Soviet Union](/wiki/Soviet_Union) where *Cannabis* continued to be the subject of active taxonomic study. The name *Cannabis indica* was listed in various [Pharmacopoeias](/wiki/Pharmacopoeia), and was widely used to designate *Cannabis* suitable for the manufacture of medicinal preparations.[[40]](#cite_note-40)

### 20th century[[edit](/index.php?title=(none)&action=edit&section=8)]

[thumb|left|](/wiki/File:Cannabis_ruderalis.jpg)[*Cannabis ruderalis*](/wiki/Cannabis_ruderalis) In 1924, Russian botanist D.E. Janichevsky concluded that [ruderal](/wiki/Ruderal) *Cannabis* in central Russia is either a variety of *C. sativa* or a separate species, and proposed *C. sativa* L. var. *ruderalis* Janisch. and *Cannabis ruderalis* Janisch. as alternative names.<ref name=small1975b/> In 1929, renowned plant explorer [Nikolai Vavilov](/wiki/Nikolai_Vavilov) assigned wild or feral populations of *Cannabis* in Afghanistan to *C. indica* Lam. var. *kafiristanica* Vav., and ruderal populations in Europe to *C. sativa* L. var. *spontanea* Vav.[[23]](#cite_note-23)<ref name=small1976a/> In 1940, Russian botanists Serebriakova and Sizov proposed a complex classification in which they also recognized *C. sativa* and *C. indica* as separate species. Within *C. sativa* they recognized two subspecies: *C. sativa* L. subsp. *culta* Serebr. (consisting of cultivated plants), and *C. sativa* L. subsp. *spontanea* (Vav.) Serebr. (consisting of wild or feral plants). Serebriakova and Sizov split the two *C. sativa* subspecies into 13 varieties, including four distinct groups within subspecies *culta*. However, they did not divide *C. indica* into subspecies or varieties.[[41]](#cite_note-41) This excessive splitting of *C. sativa* proved too unwieldy, and never gained many adherents.

In the 1970s, the taxonomic classification of *Cannabis* took on added significance in North America. Laws prohibiting *Cannabis* in the [United States](/wiki/United_States) and [Canada](/wiki/Canada) specifically named products of *C. sativa* as prohibited materials. Enterprising attorneys for the defense in a few drug busts argued that the seized *Cannabis* material may not have been *C. sativa*, and was therefore not prohibited by law. Attorneys on both sides recruited botanists to provide expert testimony. Among those testifying for the prosecution was Dr. Ernest Small, while [Dr. Richard E. Schultes](/wiki/Richard_E._Schultes) and others testified for the defense. The botanists engaged in heated debate (outside of court), and both camps impugned the other's integrity.<ref name=small1975a/><ref name=emboden1981a/> The defense attorneys were not often successful in winning their case, because the intent of the law was clear.[[42]](#cite_note-42) In 1976, Canadian botanist Ernest Small[[43]](#cite_note-43) and American taxonomist [Arthur Cronquist](/wiki/Arthur_Cronquist) published a taxonomic revision that recognizes a single species of *Cannabis* with two subspecies: *C. sativa* L. subsp. *sativa*, and *C. sativa* L. subsp. *indica* (Lam.) Small & Cronq.<ref name=small1976a/> The authors hypothesized that the two subspecies diverged primarily as a result of human selection; *C. sativa* subsp. *sativa* was presumably [selected](/wiki/Artificial_selection) for traits that enhance fiber or seed production, whereas *C. sativa* subsp. *indica* was primarily selected for drug production. Within these two subspecies, Small and Cronquist described *C. sativa* L. subsp. *sativa* var. *spontanea* Vav. as a wild or escaped variety of low-intoxicant *Cannabis*, and *C. sativa* subsp. *indica* var. *kafiristanica* (Vav.) Small & Cronq. as a wild or escaped variety of the high-intoxicant type. This classification was based on several factors including interfertility, chromosome uniformity, chemotype, and numerical analysis of [phenotypic](/wiki/Phenotypic) characters.[[44]](#cite_note-44) Professors William Emboden, Loran Anderson, and Harvard botanist [Richard E. Schultes](/wiki/Richard_E._Schultes) and coworkers also conducted taxonomic studies of *Cannabis* in the 1970s, and concluded that stable [morphological](/wiki/Morphology_(biology)) differences exist that support recognition of at least three species, *C. sativa*, *C. indica*, and *C. ruderalis.*[[45]](#cite_note-45)[[46]](#cite_note-46)[[47]](#cite_note-47)<ref name=emboden1974a>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> For Schultes, this was a reversal of his previous interpretation that *Cannabis* is monotypic, with only a single species.[[48]](#cite_note-48) According to Schultes' and Anderson's descriptions, *C. sativa* is tall and laxly branched with relatively narrow leaflets, *C. indica* is shorter, conical in shape, and has relatively wide leaflets, and *C. ruderalis* is short, branchless, and grows wild in [central Asia](/wiki/Central_Asia). This taxonomic interpretation was embraced by *Cannabis* aficionados who commonly distinguish narrow-leafed "sativa" drug [strains](/wiki/Cannabis_drug_strains) from wide-leafed "indica" drug strains.[[49]](#cite_note-49)

### Continuing research[[edit](/index.php?title=(none)&action=edit&section=9)]

[Molecular analytical techniques](/wiki/Molecular_biology) developed in the late 20th century are being applied to questions of taxonomic classification. This has resulted in many reclassifications based on [evolutionary systematics](/wiki/History_of_plant_systematics#Evolutionary_systematics). Several studies of Random Amplified Polymorphic DNA ([RAPD](/wiki/RAPD)) and other types of genetic markers have been conducted on drug and fiber strains of *Cannabis*, primarily for [plant breeding](/wiki/Plant_breeding) and forensic purposes.[[50]](#cite_note-50)[[51]](#cite_note-51)[[52]](#cite_note-52)[[53]](#cite_note-53)[[54]](#cite_note-54) Dutch *Cannabis* researcher E.P.M. de Meijer and coworkers described some of their RAPD studies as showing an "extremely high" degree of genetic polymorphism between and within populations, suggesting a high degree of potential variation for selection, even in heavily selected hemp cultivars.[[22]](#cite_note-22) They also commented that these analyses confirm the continuity of the *Cannabis* [gene pool](/wiki/Gene_pool) throughout the studied accessions, and provide further confirmation that the genus comprises a single species, although theirs was not a systematic study *per se*.

Karl W. Hillig, a [graduate](/wiki/Postgraduate_education) student in the laboratory of long-time *Cannabis* researcher Paul G. Mahlberg[[55]](#cite_note-55) at [Indiana University](/wiki/Indiana_University_(Bloomington)), conducted a systematic investigation of genetic, morphological, and [chemotaxonomic](/wiki/Chemotaxonomic) variation among 157 *Cannabis* accessions of known geographic origin, including fiber, drug, and feral populations. In 2004, Hillig and Mahlberg published a chemotaxomic analysis of cannabinoid variation in their *Cannabis* [germplasm](/wiki/Germplasm) collection. They used [gas chromatography](/wiki/Gas_chromatography) to determine cannabinoid content and to infer [allele](/wiki/Allele) frequencies of the [gene](/wiki/Gene) that controls CBD and THC production within the studied populations, and concluded that the patterns of cannabinoid variation support recognition of *C. sativa* and *C. indica* as separate species, but not *C. ruderalis.*<ref name=hillig2004a/> The authors assigned fiber/seed landraces and feral populations from Europe, central Asia, and Asia Minor to *C. sativa*. Narrow-leaflet and wide-leaflet drug accessions, southern and eastern Asian hemp accessions, and feral Himalayan populations were assigned to *C. indica*. In 2005, Hillig published a [genetic analysis](/wiki/Genetic_testing) of the same set of accessions (this paper was the first in the series, but was delayed in publication), and proposed a three-species classification, recognizing *C. sativa*, *C. indica*, and (tentatively) *C. ruderalis*.[[26]](#cite_note-26) In his doctoral [dissertation](/wiki/Dissertation) published the same year, Hillig stated that [principal components analysis](/wiki/Principal_components_analysis) of [phenotypic](/wiki/Phenotypic) (morphological) traits failed to differentiate the putative species, but that [canonical variates analysis](/wiki/Canonical_analysis) resulted in a high degree of discrimination of the putative species and infraspecific taxa.[[56]](#cite_note-56) Another paper in the series on chemotaxonomic variation in the [terpenoid](/wiki/Terpenoid) content of the [essential oil](/wiki/Essential_oil) of *Cannabis* revealed that several wide-leaflet drug strains in the collection had relatively high levels of certain [sesquiterpene](/wiki/Sesquiterpene) alcohols, including guaiol and isomers of eudesmol, that set them apart from the other putative taxa.[[57]](#cite_note-57) Hillig concluded that the patterns of genetic, morphological, and chemotaxonomic variation support recognition of *C. sativa* and *C. indica* as separate species. He also concluded there is little support to treat *C. ruderalis* as a separate species from *C. sativa* at this time, but more research on wild and weedy populations is needed because they were underrepresented in their collection.

In September 2005, [New Scientist](/wiki/New_Scientist) reported that researchers at the Canberra Institute of Technology had identified a new type of *Cannabis* based on analysis of [mitochondrial](/wiki/Mitochondria) and [chloroplast](/wiki/Chloroplast) DNA.[[58]](#cite_note-58) The New Scientist story, which was picked up by many news agencies and web sites, indicated that the research was to be published in the journal *Forensic Science International*.<ref name=gilmore2007a>[Template:Cite journal](/wiki/Template:Cite_journal)</ref>

### Popular usage[[edit](/index.php?title=(none)&action=edit&section=10)]

The scientific debate regarding taxonomy has had little effect on the terminology in widespread use among cultivators and users of drug-type *Cannabis*. *Cannabis* aficionados recognize three distinct types based on such factors as morphology, [native range](/wiki/Range_(biology)), aroma, and subjective psychoactive characteristics. *Sativa* is the most widespread variety, which is usually tall, laxly branched, and found in warm lowland regions. *Indica* designates shorter, bushier plants adapted to cooler climates and highland environments. *Ruderalis* is the informal name for the short plants that grow wild in Europe and central Asia.

Breeders, seed companies, and cultivators of drug type *Cannabis* often describe the ancestry or gross [phenotypic](/wiki/Phenotype) characteristics of [cultivars](/wiki/Cultivar) by categorizing them as "pure indica", "mostly indica", "indica/sativa", "mostly sativa", or "pure sativa".

## Uses[[edit](/index.php?title=(none)&action=edit&section=11)]

*Cannabis* is used for a wide variety of purposes.

### Recreational use[[edit](/index.php?title=(none)&action=edit&section=12)]

[Template:Main](/wiki/Template:Main) [thumb|right|400px|Comparison of physical harm and dependence regarding various drugs](/wiki/File:Drug_danger_and_dependence.svg)[[59]](#cite_note-59) [thumb|right|A dried bud, typical of what is sold for drug use](/wiki/File:Marijuana-Cannabis-Weed-Bud-Gram.jpg)

Cannabis is a popular recreational drug around the world, only behind [alcohol](/wiki/Alcoholic_beverage), [caffeine](/wiki/Caffeine) and [tobacco](/wiki/Tobacco). In the United States alone, it is believed that over 100 million Americans have tried cannabis, with 25 million Americans having used it within the past year.[[60]](#cite_note-60) The psychoactive effects of *cannabis* are known to have a biphasic nature. Primary psychoactive effects include a state of relaxation, and to a lesser degree, euphoria from its main psychoactive compound, [tetrahydrocannabinol](/wiki/Tetrahydrocannabinol). Secondary psychoactive effects, such as a facility for philosophical thinking, [introspection](/wiki/Introspection) and [metacognition](/wiki/Metacognition) have been reported amongst cases of [anxiety](/wiki/Anxiety) and [paranoia](/wiki/Paranoia).[[61]](#cite_note-61) Finally, the tertiary psychoactive effects of the drug cannabis, can include an increase in heart rate and hunger, believed to be caused by [11-OH-THC](/wiki/11-Hydroxy-THC), a psychoactive metabolite of [THC](/wiki/THC) produced in the [liver](/wiki/Liver).

Normal cognition is restored after approximately three hours for larger doses via a [smoking pipe](/wiki/One_hitter_(smoking)), [bong](/wiki/Bong) or [vaporizer](/wiki/Vaporizer_(cannabis)).[[61]](#cite_note-61) However, if a large amount is taken orally the effects may last much longer. After 24 hours to a few days, minuscule psychoactive effects may be felt, depending on dosage, frequency and tolerance to the drug.

Various [forms of the drug cannabis](/wiki/Cannabis(drug)#Forms) exist, including extracts such as hashish and hash oil<ref name=erowid/> which, because of appearance, are more susceptible to [adulterants](/wiki/Cannabis(drug)#Adulterants) when left unregulated.

[Cannabidiol](/wiki/Cannabidiol) (CBD), which has no psychotropic effects by itself[[20]](#cite_note-20) (although sometimes showing a small stimulant effect, similar to [caffeine](/wiki/Caffeine)),[[62]](#cite_note-62) attenuates, or reduces[[63]](#cite_note-63) the higher anxiety levels caused by [THC](/wiki/THC) alone.[[64]](#cite_note-64) According to [Delphic analysis](/wiki/Delphi_method) by British researchers in 2007, cannabis has a lower risk factor for [dependence](/wiki/Drug_addiction) compared to both nicotine and alcohol.[[65]](#cite_note-65) However, everyday use of Cannabis can in some cases be correlated with psychological [withdrawal symptoms](/wiki/Drug_withdrawal) such as irritability and insomnia,[[61]](#cite_note-61) and evidence could suggest that if a user experiences stress, the likeliness of getting a [panic attack](/wiki/Panic_attack) increases because of an increase of THC metabolites.[[66]](#cite_note-66)[[67]](#cite_note-67) However, cannabis withdrawal symptoms are typically mild and are never life-threatening.[[68]](#cite_note-68)[Template:Clear](/wiki/Template:Clear)

### Medical use[[edit](/index.php?title=(none)&action=edit&section=13)]

[Template:Main](/wiki/Template:Main) Medical cannabis (or medical marijuana) refers to the use of [cannabis](/wiki/Cannabis_(drug)) and its constituent [cannabinoids](/wiki/Cannabinoids), to treat disease or improve symptoms. Cannabis is used to [reduce nausea and vomiting](/wiki/Antiemetic) during [chemotherapy](/wiki/Chemotherapy), to improve appetite in people with [HIV/AIDS](/wiki/HIV/AIDS), and to treat [chronic pain](/wiki/Chronic_pain) and [muscle spasms](/wiki/Muscle_spasms).<ref name=Borgelt2013>[Template:Cite journal](/wiki/Template:Cite_journal)</ref><ref name=JAMA2015>[Template:Cite journal](/wiki/Template:Cite_journal)</ref>

Short-term use increases both minor and major adverse effects.<ref name=JAMA2015/> Common side effects include dizziness, feeling tired, vomiting, and hallucinations.<ref name=JAMA2015/> [Long-term effects of cannabis](/wiki/Long-term_effects_of_cannabis) are not clear.<ref name=Wang2008>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> Concerns including memory and cognition problems, risk of addiction, [schizophrenia](/wiki/Schizophrenia) in young people, and the risk of children taking it by accident.<ref name=Borgelt2013/>

Cannabinoids are under preliminary research for their potential to affect [stroke](/wiki/Stroke)[[69]](#cite_note-69) or children's [epilepsy](/wiki/Epilepsy).[[70]](#cite_note-70)

### Industrial use (Hemp)[[edit](/index.php?title=(none)&action=edit&section=14)]

[Template:Main](/wiki/Template:Main) [thumb|upright|*Cannabis sativa* stem longitudinal section](/wiki/File:Cannabis_Sativa_Querschnitt.JPG) The term *hemp* is used to name the durable soft fiber from the *Cannabis* [plant stem](/wiki/Plant_stem) (stalk). *Cannabis sativa* cultivars are used for fibers due to their long stems; Sativa varieties may grow more than six metres tall. However, *hemp* can refer to any industrial or foodstuff product that is not intended for use as a drug. Many countries regulate limits for psychoactive compound ([THC](/wiki/THC)) concentrations in products labeled as hemp.

Cannabis for industrial uses is valuable in tens of thousands of commercial products, especially as fibre[[71]](#cite_note-71) ranging from [paper](/wiki/Paper), [cordage](/wiki/Rope), [construction material](/wiki/Hemp#Composite_materials) and textiles in general, to [clothing](/wiki/Clothing). Hemp is stronger and longer-lasting than [cotton](/wiki/Cotton). It also is a useful source of foodstuffs (hemp milk, hemp seed, hemp oil) and [biofuels](/wiki/Biofuels). Hemp has been used by many civilizations, from [China](/wiki/China) to [Europe](/wiki/Europe) (and later [North America](/wiki/North_America)) during the last 12,000 years.[[71]](#cite_note-71)[[72]](#cite_note-72) In modern times novel applications and improvements have been explored with modest commercial success.[[73]](#cite_note-73)[[74]](#cite_note-74)

### Ancient and religious uses[[edit](/index.php?title=(none)&action=edit&section=15)]

[Template:Main](/wiki/Template:Main) [thumb|upright|](/wiki/File:Hash_museum_amsterdam.JPG)[Cannabis Museum](/wiki/Hash_Marijuana_&_Hemp_Museum) in [Amsterdam](/wiki/Amsterdam) The Cannabis plant has a history of medicinal use dating back thousands of years across many cultures.<ref name=BenAmar2006>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> The Yanghai Tombs, a vast ancient cemetery (54 000 m2) situated in the [Turfan](/wiki/Turfan) district of the [Xinjiang Uyghur Autonomous Region](/wiki/Xinjiang_Uyghur_Autonomous_Region) of the [People's Republic of China](/wiki/People's_Republic_of_China), have revealed the 2700-year-old grave of a [shaman](/wiki/Shaman). He is thought to have belonged to the [Jushi culture](/wiki/Jushi_culture) recorded in the area centuries later in the [*Hanshu*](/wiki/Hanshu), Chap 96B.[[75]](#cite_note-75) Near the head and foot of the shaman was a large leather basket and wooden bowl filled with 789g of cannabis, superbly preserved by climatic and burial conditions. An international team demonstrated that this material contained [tetrahydrocannabinol](/wiki/Tetrahydrocannabinol), the psychoactive component of cannabis. The cannabis was presumably employed by this culture as a medicinal or psychoactive agent, or an aid to divination. This is the oldest documentation of cannabis as a pharmacologically active agent.[[76]](#cite_note-76) Settlements which date from *c*. 2200–1700 BCE in the [Bactria](/wiki/Bactria) and [Margiana](/wiki/Margiana) contained elaborate ritual structures with rooms containing everything needed for making drinks containing extracts from poppy (opium), hemp (cannabis), and [ephedra](/wiki/Ephedra) (which contains [ephedrine](/wiki/Ephedrine)).[[77]](#cite_note-77)

"While we have no evidence of the use of ephedra among the steppe tribes, we have already seen that they did share in the cultic use of hemp, a practice that ranged from [Romania](/wiki/Romania) east to the [Yenisei River](/wiki/Yenisei_River) from at least the 3rd millennium BC onwards where its use was later encountered in the apparatus for smoking hemp found at [Pazyryk](/wiki/Pazyryk_culture)."[[78]](#cite_note-78)

*Cannabis* is first referred to in [Hindu](/wiki/Hindu) [Vedas](/wiki/Vedas) between 2000 and 1400 BCE, in the [*Atharvaveda*](/wiki/Atharvaveda). By the 10th century CE, it has been suggested that it was referred to by some in India as "food of the gods".[[79]](#cite_note-79) Cannabis use eventually became a ritual part of the Hindu festival of [Holi](/wiki/Holi).

In [Buddhism](/wiki/Buddhism), cannabis is generally regarded as an intoxicant and may be a hindrance to development of meditation and clear awareness. In ancient [Germanic culture](/wiki/Germanic_peoples), *Cannabis* was associated with the [Norse](/wiki/Norse_mythology) love goddess, [Freya](/wiki/Freya).[[80]](#cite_note-80)[[81]](#cite_note-81) An anointing oil mentioned in Exodus is, by some translators, said to contain *Cannabis*.[[82]](#cite_note-82) [Sufis](/wiki/Sufi) have used *Cannabis* in a spiritual context since the 13th century CE.[[83]](#cite_note-83) In modern times the [Rastafari movement](/wiki/Rastafari_movement) has embraced *Cannabis* as a sacrament.[[84]](#cite_note-84) Elders of the [Ethiopian Zion Coptic Church](/wiki/Ethiopian_Zion_Coptic_Church), a [religious movement](/wiki/Religious_movement) founded in the [United States](/wiki/United_States) in 1975 with no ties to either [Ethiopia](/wiki/Ethiopia) or the [Coptic Church](/wiki/Coptic_Orthodox_Church_of_Alexandria), consider *Cannabis* to be the [Eucharist](/wiki/Eucharist), claiming it as an oral tradition from [Ethiopia](/wiki/Ethiopia) dating back to the time of [Christ](/wiki/Christ).[[85]](#cite_note-85) Like the Rastafari, some modern [Gnostic](/wiki/Gnostic) Christian sects have asserted that *Cannabis* is the [Tree of Life](/wiki/Tree_of_Life_(Judeo-Christian)).[[86]](#cite_note-86)[[87]](#cite_note-87) Other organized [religions](/wiki/Religions) founded in the 20th century that treat *Cannabis* as a [sacrament](/wiki/Sacrament) are the [THC Ministry](/wiki/THC_Ministry),[[88]](#cite_note-88) [Cantheism](/wiki/Cantheism),[[89]](#cite_note-89) the [Cannabis Assembly](/wiki/Cannabis_Assembly)[[90]](#cite_note-90) and the [Church of Cognizance](/wiki/Church_of_Cognizance). Rastafarians tend to be among the biggest consumers of modern Cannabis use.

Clay pipes at [William Shakespeare's](/wiki/William_Shakespeare) [Stratford-upon-Avon](/wiki/Stratford-upon-Avon) garden may contain cannabis, indicating that Shakespeare may have been a cannabis smoker.[[91]](#cite_note-91)

## Etymology[[edit](/index.php?title=(none)&action=edit&section=19)]

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The word *cannabis* is from [Greek](/wiki/Ancient_Greek) [Template:Lang](/wiki/Template:Lang) ([*Template:Lang*](/wiki/Template:Lang)) (see [Latin](/wiki/Latin) [*Template:Lang*](/wiki/Template:Lang)),[[111]](#cite_note-111) which was originally [Scythian](/wiki/Scythian_languages) or [Thracian](/wiki/Thracian_language).[[112]](#cite_note-112) It is related to the [Persian](/wiki/Persian_language) *kanab*, the English *canvas* and possibly even to the English [*hemp*](/wiki/Hemp) ([Old English](/wiki/Old_English) [*Template:Lang*](/wiki/Template:Lang)).[[112]](#cite_note-112) In [modern Hebrew](/wiki/Modern_Hebrew), [Template:Hebrew](/wiki/Template:Hebrew) [*Template:Transl*](/wiki/Template:Transl) (modern pronunciation: [Template:IPA-he](/wiki/Template:IPA-he)) is used but there are those who have theorized that it was referred to in antiquity as קני בושם [*Template:Transl*](/wiki/Template:Transl), a component of the biblical anointing oil.[[113]](#cite_note-113)[[114]](#cite_note-114) Old Akkadian *qunnabtu*, Neo-[Assyrian](/wiki/Assyria) and Neo-[Babylonian](/wiki/Akkadian_language) *qunnabu* were used to refer to the plant meaning "a way to produce smoke."[[115]](#cite_note-115)[[116]](#cite_note-116)[[117]](#cite_note-117)

## See also[[edit](/index.php?title=(none)&action=edit&section=20)]

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* [Cannabis cultivation](/wiki/Cannabis_cultivation)
* [Cannabis drug testing](/wiki/Cannabis_drug_testing)
* [Cannabis Social Club](/wiki/Cannabis_Social_Club)
* [Hash, Marihuana & Hemp Museum](/wiki/Hash,_Marihuana_&_Hemp_Museum)
* [Indian Hemp Drugs Commission](/wiki/Indian_Hemp_Drugs_Commission)

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## References[[edit](/index.php?title=(none)&action=edit&section=21)]

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## Further reading[[edit](/index.php?title=(none)&action=edit&section=22)]

[Template:Refbegin](/wiki/Template:Refbegin)

* [Template:Cite book](/wiki/Template:Cite_book)
* [Template:Cite book](/wiki/Template:Cite_book)
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## External links[[edit](/index.php?title=(none)&action=edit&section=23)]

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* [International Plant Names Index (IPNI)](http://www.ipni.org/ipni/advPlantNameSearch.do?find_family=&find_genus=Cannabis&find_species=&find_infrafamily=&find_infragenus=&find_infraspecies=&find_authorAbbrev=&find_includePublicationAuthors=off&find_includeBasionymAuthors=off&find_publicationTitle=&find_isAPNIRecord=on&find_isAPNIRecord=false&find_isGCIRecord=on&find_isGCIRecord=false&find_isIKRecord=on&find_isIKRecord=false&find_rankToReturn=all&output_format=normal&find_sortByFamily=on&find_sortByFamily=off&query_type=by_query&back_page=plantsearch)

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