Mind-altering and psychoactive plants

Affect performance of brain and central and peripheral nervous system by influencing signal transduction in neurons

At low concentrations compounds may be mind-altering or stimulating; same compounds may be deadly poisons at higher concentrations
Mind-altering and psychoactive plants

Classification based on plant’s effects:

• **Stimulants**: alert and stimulate the mind or activity *without* changing perception

• **Sedatives, hypnotics or narcotics**: sedating, sleep-inducing, or narcotic properties that can change perception and cause vivid dreams, euphoria

  • Opium poppy (*Papaver somniferum*; Papaveraceae)
  • Valerian (*Valeriana officinalis*; Valerianaceae)
  • Hops (*Humulus lupulus*; Cannabaceae)
  • Kava Kava (*Piper methysticum*; Piperaceae)
Mind-altering and psychoactive plants

**Hallucinogens**: plants with substantial influence on perception of space, time, & emotions. Illusions appear real.

Used for centuries by shamans, witches in magic and in spiritual/healing rituals.

Approximately 16 important hallucinogenic plants.
Mind-altering and psychoactive plants

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- Wormwood (*Artemisia absinthium*; Asteraceae)
  - Absinthin, thujone
  - Used for pest control and abortion
  - Essential oil was main ingredient in absinthe, but banned from the liqueur in early 20th century
  - Vincent van Gogh was addicted to absinthe
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- Ayahuasca (*Banisteriopsis caapi*; Malpighiaceae)
  - Alkaloids from bark
  - Traditionally used in Brasil, Peru, & Colombia
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- Diviner’s sage (*Salvia divinorum*; Lamiaceae)
  - Mexican in origin
  - Mind-altering diterpene compounds
  - Leaves chewed or smoked
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- Deadly nightshade (*Atropa belladonna*; Solanaceae)
  - Hallucinogenic and aphrodisiac (pupil widening) properties
  - Applied to skin for feeling of flight
  - Atropine--alkaloid
  - Ancient anaesthetic
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- Marijuana (*Cannabis sativa*; Cannabaceae)
  - Subspecies *indica* used as drug—only flowering twigs of female plants
  - Various medicinal uses since ancient times
  - Phenolic terpenoids; psychotropic effect due to tetrahydrocannabinol
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- Peyote (*Lophophora williamsii*; Cactaceae)
  - Native to arid regions of S Texas and Mexico
  - Active ingredient alkaloid mescaline
  - Dried stems chewed for intoxication
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- Iboga (*Tabernanthe iboga*; Apocynaceae)
  - Important in tropical & W Africa for rituals and initiation rites; also chewed like *Coca* leaves to suppress hunger and fatigue
  - Active ingredient alkaloid ibogaine
  - Dried roots chewed; roots leached in palm wine
  - Interest in use as treatment for opiate addiction