



# The Universe of Drugs

This mandala and navigation map is an attempt to broaden the knowledge we have about the diversity of psychoactive substances and their different properties. This is not an exhaustive map covering all substances that exist. However, we do include those that are most common and show how their effects and chemical structures are interrelated.

The arrangement and distribution of each substance in the graph is determined by the type of effect it has, its intensity and the power or potency in relation to the other substances in its group. The location of a substance, relative to the center of the map and axis of each family, represents the strength and the quality of the effect in relation to the molecular family. The colors represent the gradient of the different types of effects and how they are mixed or blended in certain substances.

## ANESTHETICS AND DISSOCIATIVE ANESTHETICS

**DXM (Dextromethorphan)** Is found in cough syrup and may have dissociative effects at high doses. The use of this substance recreationally carries high risks because a person can easily consume a lethal dose.

**GBL (Gamma-Butyrolactone)** Very similar to GHB in effects and risks, it is used as an anesthetic in subcutaneous and intravenous.

**GHB (Gamma-Hydroxybutyrate)** A sedative with anesthetic properties, it has become very popular in electronic music festivals, raves and clubs. Increasingly it is used as a "rape drug" because it can lead to loss of consciousness. It can be lethal in high doses and the risk increases dramatically when combined with alcohol.

**KETAMINE** An anesthetic with dissociative properties frequently used recreationally. Its primary legal use has been in veterinary settings and as an anesthetic for children in some medical situations because it is safer than other anesthetics.

**MXE (Methoxetamine)** New Psychoactive substance, similar to Ketamine, it is a compound with dissociative anesthetic properties, specifically designed for unregulated sale and recreational use. There is no information or research about the impact of its medium or long term use.

**NITROUS OXIDE** Also known as Laughing Gas, it is a gas sometimes used by dentists as an anesthetic. It is necessary to monitor the quantities and dosages utilized to avoid overdose.

**PCP (Phencyclidine)** Known on the street as Angel Dust. This is a dissociative anesthetic, causing states of euphoria, which makes some people think of it as a stimulant.

## DELIRIANTS AND ENTACTOGENS

**BETEL NUT or ARECA** Is a type of nut that has certain hypnotic and antidepressant effects. In high doses it can cause severe alterations of consciousness.

**MUSCIMOL** (with psychedelic effects): A deliriant, it's the main active compound of the Amanita muscaria mushroom. Ibotenic Acid and Muscarine are also active compounds present in this fungus but they are toxic and their proportion varies depending on conditions where the Amanita is found.

**NUTMEG** Primarily used as an everyday condiment. When ingested at higher doses it has hypnotic and dissociative effects that can be overwhelming, uncomfortable and difficult to control, even in moderate doses.

**SAPONINS** Refer to the active compounds present in a variety of plants such as Silene undulata with onerogenic (dream producing) and entactogenic properties. It is used in South Africa as part of the "White War" for conscious deliriant or healing.

**SCOPOLAMINE & HYOSCYAMINE (Datura & Brugmansia)** Compounds found in a family of plants used with mystical and religious purposes in different regions of Latin America, India and in some Asian countries. Its main active compounds are Atropine, Scopolamine and Hyoscyamine. The most known and used are Brugmansia, Mandrake, Belladonna and Datura. Las más conocidas y usadas son el Floripondio, la Mandrágora, la Belladona y el Toloache.

## DEPRESSANTS

**ALCOHOL** A central nervous system depressant, highly toxic and legal. It is the second most widely used psychoactive substance in the world, whose physical dependence is considered one of the most acute and difficult (alcoholism). Alcohol is a substance often linked to social violence, domestic and intimate partner violence, robberies, violent assaults and car accidents.

**BARBITURATES** Originally used as sedatives, a big family of compounds that were replaced by Benzodiazepines due to its higher safety threshold.

**BUPRENORPHINE** Legal opioid often used as a substitution treatment for opiate or opioid dependence, mainly Heroin. The duration of action is 6 hours, so treatment requires about three doses a day.

**CHLOROPFORM** Like Ether, it is an anesthetic that is inhaled, rarely used in recreational settings. Popularized as assault or kidnapping substance to knock out the victim.

**CODEINE** Another opiate with analgesic effects naturally present in the Poppy, among other plants and contributes to the analgesic and narcotic effects of Opium.

**ETHER** Is used as an inhaled anesthetic. Its use was discontinued thanks to the discovery of Morphine as Ether has higher risk of overdose and threatens the autonomous functions of the respiratory and cardiovascular system.

**FENTANYL** Synthetic opioid between 75 and 125 times more potent than Morphine, but with less narcotic effects. It is used as anesthetic for surgery or as an analgesic for acute pain, usually post-surgery.

**HEROIN** A substance derived from Morphine but with better bioavailability in the brain, making it 10 to 30 times more powerful. Heroin can take different forms, from pharmaceutical grade to street powders of different colors and purities depending on how it has been processed.

**HYDROCODONE** An opioid analgesic, which under the trade name of Vicodin, has generated abuse problems and dependence in a large number of people. Famous for being the drug used by the popular character Dr. House.

**INHALANTS and SOLVENTS** These substances are usually called "solvents" for their ability to dissolve other substances. Solvents have the ability to elute water-insoluble substances such as the myelin layer that enables the neurons to perform as electric circuits. They can be purchased at hardware stores and are relatively inexpensive.

**KAMBO** Is the name given to frog Phyllomedusa bicolor, from which a resin is extracted and used for initiation ceremonies, as purgative and "purifying" medicine. The psychoactive alkaloids contained in the resin of this reptile act on opioid circuits and are slightly toxic, they trigger a process of deep detoxification, usually accompanied by vomiting and loss of consciousness or a state of lethargy and sluggishness.

**METHADONE** A legal substitute to treat opiate or opioid dependency, particularly Heroin. It has a much longer duration, which allows you to take one dose every 24 hours, but maintains the physical dependence.

**METHAQUALONE** A pharmaceutical sedative sold under the trade name Quaalude and Mandrax. It had great popularity in the United States in the 60s and 70s.

**MORPHINE** Opiate exploited by the pharmaceutical industry because of its analgesic properties, it is found naturally as the main active compound of the poppy gum, which is called Opium.

**NITRITES (Poppers)** A family of vasodilators which include alkyl nitrites, isopropyl and isobutyl, among others. They are administered by inhalation, causing dizziness and relaxation that lasts a few minutes. They are frequently used to facilitate penetration because the sphincter muscles in the anus and the vagina relax. Continued use can cause neurological damage.

**OPIUM** Name given to the gum extracted from the poppy, Papaver somniferum. Among other alkaloids it contains Morphine and Codeine as main active compounds. It has been used since ancient times as medicine and is historically the first substance for which control mechanisms or regulation models for its use were developed.

**OXYCODONE** Opiate (the trade name) has become one of the leading causes of dependence or addiction and overdose deaths in relation to the use of pharmaceutical grade synthetic opioids.

## CANNABINOIDS

**CBD (Cannabidiol)** Present in the Cannabis or Marijuana plant, it has antidepressant properties, counteracts the psychoactive effects of THC and is very efficient in treating neurodegenerative diseases or neurological deficits (Parkinson's, Alzheimer's, arteriosclerosis, different types of epilepsy, etc.), so it is the most sought after compound used in medicinal Cannabis therapies.

**CBN (Cannabinol)** Cannabinoid with slightly psychoactive properties being studied in conjunction with THC and CBD to modify the way in which different preparations and presentations within the therapeutic use of Cannabis have an impact or modify organic processes of people in treatment.

**THC (Delta-9-tetrahydrocannabinol)** The main psychoactive compound of cannabis or marijuana, its effects span several categories and that's why it's in the center of the map but it belongs to the family of the Cannabinoids. Some Cannabinoids are naturally present in our bodies and serve important functions in regulating mood and feelings such as hunger or pain. The endo-cannabinoid system is also related to memory and sleep, among other processes.

## PHARMACEUTICAL STIMULANTS

**ADRAFANIL** Stimulant drug not approved by the FDA in the U.S.A., it is metabolized in the body as Modafinil.

**BUPROPION** (Formerly known as Amfebutamone) Is a medication primarily used as an antidepressant and smoking cessation aid. It is marketed as Wellbutrin and Zyban among other trade names. It is one of the most frequently prescribed antidepressants in the United States and Canada.

**MODAFINIL** Is a wakefulness-promoting agent (or eugeroic) is used for treatment of disorders such as narcolepsy, shift work sleep disorder, and excessive daytime sleepiness associated with obstructive sleep apnea. It has also seen widespread off-label use as a purported cognition-enhancing agent.

**PHENTERMINE** A pharmaceutical amphetamine used in weight reduction treatments which also has a high potential for abuse.

## BENZODIAZEPINES (Psychiatric Sedatives)

**ALPRAZOLAM** A sedative medication with the trade name Xanax or Tafil, is prescribed for moderate cases of insomnia or anxiety and has caused problems of drug dependency.

**CLONAZEPAM** Anxiolytic and antiepileptic sedative with the trade name Klonopin or Rivotril also has a significant degree of abuse; 10mg Diazepam (Valium) is equivalent to 0.5 milligrams of Clonazepam, therefore the latter is 20 times more potent.

**DIAZEPAM** (Trade name Valium) A sedative and anxiolytic medication that typically produces a calming effect. Often used in its injectable form, but it also generates other patterns of abuse because it is overprescribed by doctors and psychiatrists.

**FLUNITRAZEPAM** A sedative hypnotic sold under the trade name Rohypnol ("roofies" or "queens"), is one of the most abused Benzodiazepines, is 10 times more potent than Diazepam and its production and distribution in some places has been discontinued. Heavily related to the formation of the "rape drug" concept.

**LORAZEPAM** High potency Benzodiazepine, anxiolytic, hypnotic and anticonvulsant that is sold under the trade name Ativan or Sinecron.

**TEMAZEPAM** A sedative Benzodiazepine with anticonvulsant properties that works as a muscle relaxant. It is often prescribed for severe insomnia and has similar problems as Diazepam (Valium) and Alprazolam (Xanax or Tafil).

## PSYCHIATRIC DRUGS

**ATOMOXETINE** (Strattera) More than an antidepressant it is considered a "neurotropic" compound and is indicated only as a treatment for Attention Deficit Disorder and Hyperactivity.

**CLOZAPINE** (Clozaril) An atypical antipsychotic with sedative effects, used as a treatment for schizophrenia resistant to other antipsychotic drugs. It is a secondary option because of its toxicity.

**ESITALOPRAM** (Lexapro) An antidepressant that modulates serotonin reuptake, may cause withdrawal symptoms if stopped abruptly and is prescribed for cases of schizophrenia or anxiety disorders.

## PSYCHEDELICS

**4-ACO-DMT** Created by Albert Hoffman as a synthetic analogue of Psilocybin, once in the organism it is metabolized into Psilocin like its natural analogue.

**5-MeO-DALT** Psychedelic tryptamine developed by Alexander Shulgin in 2004. In moderate doses, its effects are slightly euphoric and empathogenic, short and easy to handle at moderate doses, in needs to be measured by the milligram.

**5-MeO-DMT** A powerful psychedelic related to N,N-DMT and Bufotenin. It is found in some fungi, the Bufo alvarius toad from Sonora and is the main active compound in the Yopo seed.

**BUFOTENIN (N-Dimethyl-5-hydroxytryptamine)** An entheogenic alkaloid with powerful hallucinogenic properties found in the skin of frogs in the genus Bufo. Some toads like the Bufo alvarius produce it along with the 5-MeO-DMT.

**DMT (N,N-Dimethyltryptamine)** Unique endogenous psychedelic, present in a large number of plants and animals. It is one of the main active compounds in the preparation of Ayahuasca, a sacred drink of ritual use in the Amazon.

**DPT (Dipropyltryptamine)** A psychedelic tryptamine similar to DMT but with more introspective effects of ego dissolution and other sensory modulations closer to classic psychedelics like LSD or psilocybin.

**IBOGAINE** (With stimulating effects in low to moderate doses) Is located in the roots of the African shrub, Tabernaemontana iboga, traditionally used in religious and initiatory rites by groups from Gabon and the Western part of Central Africa. In modern times it is used with great success in treating dependencies or addictions.

**LSA** Also known as Lysergic acid amide or Ergina, is the main active compound in some plants and seeds such as Orloniqui, the Hawaiian Baby Woodrose and Ergot, which has been the main organic source to synthesize LSD.

**LSD (Lysergic acid diethylamide)** is a popular psychedelic substance that is one of the most powerful and less toxic substances we know, its active dose starts at around 20 micrograms and is less toxic than Vitamin C. It has shown great potential as a therapeutic tool in different areas, including drug dependence or addiction.

**MESCALINE** Main active compound in Peyote cactus, Lophophora wiliamsii, traditionally used by the Wixárika (Huichol) and some indigenous groups of Native Americans like the Lakota. It is also found in the San Pedro cactus, Echinopsis pachanoi.

## STIMULANTS WITH PSYCHEDELIC PROPERTIES

**2C-B** A synthetic phenethylamine and psychedelic molecule with slightly stimulating effects originally designed by Alexander Shulgin in 1974 using the Mescaline phenethylamine structure. It is also known as Nexus and its effects may seem to resemble a combination of LSD and MDMA.

**2C-C** From the same family as 2C-B and similarly created by Shulgin, 2C-C has subtler effects and can be acquired as an experimental or research chemical.

**2C-I** Psychedelic phenethylamine synthesized by Alexander Shulgin. Its effects are more mental and less sensory than those of 2C-B. In the black market it can be sold as "Mescaline" for its molecular similarity, however, they are substances with very different effects and properties.

**2C-T-4** With the same basis as 2C-B, this molecule has almost no stimulating effects and conversely, it is a more powerful psychedelic. Still no data on the effects of its use in the medium and long term.

**AMT (Alpha-Methyltryptamine)** A synthetic tryptamine with long-lasting stimulant and slightly psychedelic effects. It is considered a new psychoactive substance that has been illegal in the United States since 2003.

**DOM (2,5-Dimethoxy-4-methylamphetamine)** A synthetic phenethylamine, this psychedelic was created by Alexander Shulgin in 1974 and today is used as a substitute for LSD on the black market. It can be distinguished from LSD through the bitter/metallic flavor it has and the duration of its effects, which can last up to 25 hours and can take up to 2 hours to appear.

**MDA-MDEA** Similar to MDMA and sold as ecstasy, in mixtures or completely substituted for one of the other molecules. Its effects and risks are similar to those of MDMA. MDA is slightly more psychedelic and stimulant than MDMA.

**MDMA (3,4-Methylenedioxyamphetamine)** Better known as "ecstasy" or "molly", was originally used as a therapeutic tool in couples therapy, post-traumatic stress, anxiety and fear of death in different types of terminal illnesses. Ecstasy tablets that are available in the black market are often adulterated with Methamphetamine, Amphetamines and other stimulants. In some cases, they don't even contain MDMA.

**MOXY (5-MeO-MIPT)** A psychedelic tryptamine that belongs to the group of new psychoactive substances with slightly euphoric and entactogenic effects.

**NBOMe** A psychedelic phenethylamine derived from 2C-I. It is often sold as LSD, and can be distinguished by its bitter taste and numbness of the tongue and mouth. In little square of paper containing LSD should have no taste whatsoever). Unlike Lysergic Acid, this substance is toxic and there are major risks of overdose and poisoning.

**PMA (Para-Methoxyamphetamine)** An Amphetamine and new psychoactive substance, also known as "Dr. Death" or just "Death", this amphetamine has slightly antidepressant and psychedelic effects. Sometimes it is passed in pill form as MDMA or "Ecstasy" which has produced a significant number of deaths.

## NATURAL STIMULANTS

**CAFFEINE** A natural stimulant found in coffee and in certain types of tea. It is the most popular and widely used psychoactive substance in the world. 52 cups of coffee for its equivalent in caffeinated products, separately or mixed) can be lethal.

**CATHINONE** Is found naturally in Khat, an African plant that is chewed in a similar way to the Coca leaf in South America, producing stimulating and mildly intoxicating effects. Cathinone has served as a chemical starting point for the development of several new psychoactive substances such as Methyl-Cathinone or Mephedrone and is closely related to Amphetamine.

**COCA** A shrub native to the Andes with a long history of use in traditional medicine of the Andean cultures. It is considered a sacred plant for its analgesic and stimulating effects, and is recognized for its nutritional qualities and high vitamin content. Cocaine is chemically produced using the leaves as raw material, but traditionally the leaves are chewed.

**EPHEDRINE** Moderate stimulant found naturally in the plant Ephedra distachia. It is used in certain medicines and is a precursor to synthesize Methamphetamine.

**NICOTINE** (with antidepressant properties): Having a dependence potential similar to Heroin, Nicotine is the main active compound of tobacco, which has different traditional uses like "Rape" or inhaled powdered tobacco; commercial cigarettes cause more than 6 million deaths per year worldwide.

**TAURINE** Not properly a stimulant, Taurine is an organic acid widely distributed in the animal tissue, often referred to as amino acid but in reality it belongs to the family of rare sulfonic acids. It is as an ingredient in energy drinks because it increases the stimulating effect of Caffeine.

**THEOBROMINE** A stimulant present in cacao (and chocolate) with very interesting and complex properties. For effects similar to smoking cannabis an adult would have to eat at least 6 kilograms of chocolate in less than an hour.

**THEOPHYLLINE** A natural stimulant, the main active ingredient of the tea leaf and more potent than Caffeine, however, the amount present in a cup of tea does not equal the stimulatory effects of a cup of coffee.

**YOHIMBINE** An "Aphrodisiac" that has become popular as a substitute for the "rape drugs" such as Rohypnol or GHB. Does not generate loss of consciousness, but it appears that low doses may cause changes in the cardiovascular system and can potentially be lethal.

## STIMULANTS

**AMPHETAMINE** Is the molecular basis of many other substances such as MDMA, Methamphetamine and various medications such as Bupropion. Sold on the street as "amps" or "speed" and the powder or crystal is commonly snorted. Often powders and tablets sold as "ecstasy" or MDMA contain Amphetamine as an adulterant or are completely replaced by this, creating unexpected effects and increasing the health risk.

**BZP (Benzylpiperazines)** This are part of the group of new psychoactive substances. BZPs are considered legal substances that mimic the effects of ecstasy. As with other new compounds there is little information about the impacts of their use in medium and long term.

**COCAINE** A stimulant chemically extracted from the coca leaf. It is used as a local anesthetic and is a precursor for Xyllocaine and Lidocaine, which have the same use without the psychoactive properties.

**CRACK** An intense, but short acting stimulant that is typically smoked. It is produced from the reaction between Cocaine hydrochloride and sodium bicarbonate. It is known as "Stone or Rock". It has a high dependence potential and its use can generate a compulsive pattern of its short duration and the strong comedown "negative" sensation.

**MDPV (Methylenedioxypropylammonium)** is a synthetic stimulant that acts by inhibiting the reuptake of norepinephrine and dopamine. It is one of the main active compounds found in "Bath Salts" and is sometimes called "Super Cocaine".

**MEPHEDRONE (4-Methyl-Methcathinone)** Is known as Meow Meow and sold online as plant fertilizer, it is a very powerful stimulant derived from Cathinone and has been found in tablets sold as MDMA.

**METH** Stimulant substance with a high potential for abuse and dependence, increasingly popular on the black market. It is known as Crystal Meth, Ica, Crank and in combination with Amphetamine is known as Speed. It can be found in pharmaceutical presentation as Desoxyn or as part of Adderall, which is used as a treatment for attention deficit disorder and hyperactivity. It is often used as an adulterant of MDMA (ecstasy).

**TFMPP (3-Trifluoromethylphenylpiperazine)** Usually found in combination with BZP, this new psychoactive substance is intended to simulate the effects of MDMA or "Ecstasy". It has been observed in laboratory animals that use leads to decreased locomotive activity and produces adverse effects.