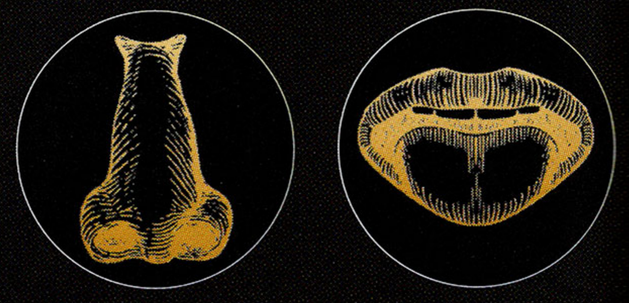
Cannabis Extracts and Their Sensory Experiences

By Kevin Koby, Abstrax Tech



There's nothing quite like walking through a field of flowering cannabis. The stunning experience, while quite pleasant for the type reading this magazine, can overwhelm people unaccustomed to aromas of such depth. For those uninitiated, it's the feeling of deeply breathing in a freshly-stocked flower shop, but times a thousand. The thing is, just like the floral diversity visible within that store, cannabis also has variations. There are a wide range of cultivars, each in possession of their own unique smell. Depending on the plant in question, the scent of a ripe pot grow can vary from a citric tang to the fermentation notable in hard-rind cheeses, or even the smell of human feet after a gym session. Relative to the unique characteristics inherent to a specific type of cannabis, those who enjoy it will encounter a spectrum of sensory experience, which is explored below.

A sensory experience is created through our perception of physical stimuli. But, while perception can differ from person-to-person, that external stimulus is constant. So, if the same thing happens to two different people, they might experience it differently, e.g., smoking from a dab rig for the first time. However, virtually everyone can agree upon the sensations related to consistent physical stimulus like heat, cold, etc. The primary stimulus of cannabis is the magnitude of its smell. It's that impact associated with smelling heavy, musky bud or the lack thereof when sniffing a faintly grassy nug. These differences, both in scent and potency, are determined by a plant's terpene profile. The chemicals we call terpenes are manufactured by the plant in a goodness factory called the trichome. These trichomes are predominantly located on cannabis flowers, where they volatize terpenes. The larger and more frequent the trichome, the more plentiful the terpenes.

Terpenes grow, accumulate, and many disperse through the air in a molecular cocktail containing a multitude of other compounds. At this point in the industry, the term "terpene profile" is almost cliché, because cannabis' sensory experience is now understood to be influenced by compounds other than terpene, such as esters, ketones, alcohols, and polyfunctional thiols. While terpenes do make up the bulk of the weight of a terpene profile's molecular cocktail, research suggests there are small compounds that have a massive effect. The relationship of these molecules to larger sensory perception effects is currently unknown. This is the principle mission of Abstrax Tech: to identify and replicate exactly what gives Tangie its Tanginess, how OG's stank is formulated, and why Sour Diesel smells like a skunk.

In a perfect world, the flavor of flower and extracts of the same cultivar would be identical. But this just isn't the case. As the raw cannabis used in extraction undergoes filtration processes, all molecules save THC are stripped away, including those original, flavorful terpenes. Recreating the precise terpene profile of individual cultivars is the core mission of some concentrate manufacturers. However, sensory experiences do differ significantly between concentrates and the more diluted molecular doses of conventional flower. Extracts are characterized as having heightened sensory experience compared to flower precisely because they are concentrated. This may be why some products are described as being "loud." It's not difficult to identify these superior products, as the effects noticeable from a simple whiff are a good indicator. The pungency of various sensory experiences that cannabis naturally gives us can vary from earthy, to herbal, sweet, and so on. We know that terpenes are largely (in terms of molecular mass) responsible for these sensory experiences. Each terpene possesses a unique smell and effect. For example, while walking through a coniferous forest, one would be immersed in a gaseous sea of pinene, the dominant terpene found in pine trees and giving them their characteristic aroma. Breathing this terpene would result in a person feeling slightly more alert, and a bit better focused. [1] Similar events occur when the humulene and myrcene of hoppy beer make someone sleepy or how the linalool in lavender soothes and eases. Fortunately,

these plants were not banned from research, so we understand them and the physiological effects of their independent molecules and derivatives well. All of the molecules mentioned above, and many more, are naturally found in cannabis.

Not unlike many other floras in modern agriculture, cannabis has been selectively bred for many years. A key factor is that a generation of cannabis plants can be ready to harvest in just a few months. This speed, plus the ease of growing, has resulted in the wide cultivar assortments visible in any self-respecting dispensary. Additionally, this developmental variety breeds more diversity, paving the road for the creation of more unique terpene profiles that we haven't even identified yet. With the rise of new terpenes that have unknown physiological effects, it's an exciting opportunity to learn more. What we do know is that these terpene blends have synergistic effects with cannabinoids, which are themselves modified terpenoids. These interact with our endocannabinoid system in a compounding combination of terpenes and cannabinoids called the entourage effect. Depending on the terpenes, cannabinoids, and concentration of each, a spectrum of interactions can occur inside the body.

Lots of terpenes exist throughout nature. Scientists have identified over one hundred within cannabis. [2] Many of these are drawing a lot of attention, so it's become common for laboratories to test samples for the content levels of 15-30 terpenes. Abstrax Labs, a licensed type-7 manufacturing lab in Long Beach, will soon test cannabis for hundreds of specific molecules, including terpenes, cannabinoids, and their derivatives in an effort to further understand cannabis. We are excited to uncover the nuances of the cannabis sensory experience and look forward to publishing our findings when we discover those subtle differences that make this plant as miraculous as it is.

References

- [1] Russo, E., "Taming THC: potential cannabis synergy and phytocannabinoid-terpenoid entourage effects", British Journal of Pharmacology, 2011, Volume 163: 1344–1364. (cited by 510; impact factor = 6.81)
- [2] ElSohly, M., "Chemical Constituents of Cannabis", in Cannabis and Cannabinoids: Pharmacology, Toxicology, and Therapeutic Potential, Edited by Grotenhermen, F., and Russo, E., Psychology Press, 2002