

## It's all in the family: Are Cilantro and Culantro the same?



Human families tend to share characteristics: all my brothers are also adorably chubby. The defining shared morphological characteristic of members of the Apiaceae family are the flower clusters which form as delightful fragrant umbels. In addition, all members of the Apiaceae family tend to produce essential volatile oils composed of mostly aldehydes (>80%) and terpenoids which contribute to their distinctive flavor and aroma; for example, apiole in parsley, anethole in anise (used to flavor Absinthe liquor), carvone in caraway and dill, caryophyllene in carrot, cuminaldehyde in cumin and myristicin in parsley. Many terpenoids are important in plant defense against herbivory and have insecticidal and antimicrobial effects; moreover, their distinctive scents may attract pollinators or carnivorous insects or may even involve communication among plants and species. Not all terpenoids are friendly to humans, parsnip produces phytotoxic compounds that sensitize human skin to sunlight, and hemlock species are poisonous.

Sometimes members of plant families may not look the same or share the same geographic origin, but do tend to share chemistry either based shared evolutionary history or convergent evolution and therefore produce similar secondary metabolites. Two plants in the Apiaceae family, Cilantro (*Coriander sativum*) and Culantro (*Eryngium foetidum*) are often confused not only linguistically, but also in culinary applications. The plants have distinct geographic origins. Culantro is native to the tropical areas of the Americas and the West Indies, and was introduced into tropical SE Asia, especially Vietnam, and is now an ingredient in Pho soup. In contrast, cilantro originated in the Mediterranean region and was introduced to the Americas and is now incorrectly thought to be an original Mexican spice. Cilantro is used both as a fresh herb and also for the seeds (Coriander); both have a lemony citrus flavor due to terpenes linalool and pinene. Cilantro does not tolerate high cooking temperatures and turns black and is

thus sprinkled on the meal after cooking, Culantro can withstand high temperature cooking and is thus a condiment used by my wife to flavor black beans used to make her Gallo Pinto. Culantro has many names including, spiny cilantro, long-leafed coriander, or cilantro coyote (Costa Rica). In Puerto Rico and the Dominican Republic, the name recaó is also common. Culantro has long leaves that grow in rosettes, cilantro has thin scallop-shaped leaves that grow on the tips of long, very thin stems. Additionally, cilantro is an annual plant, not a biennial like culantro. Both plants tend to bolt in the long-days of Wisconsin, and thus, are really available for only one fleeting afternoon in the late spring and then, thankfully, well into the short days and lower temperatures of the fall.

The confusion in these two herbs is based on their similar flavor and aroma, due primarily to shared aldehydes although the ratios are slightly different which makes culantro generally more intensely pungent compare to cilantro. The flavor and aroma is not sensed the same for everyone, and based on your own personal genetics is either a fresh, spring-like citrusy flavor, or a revolting soapy, rotting stink bug. Don't blame the plant, the culprit is in your genes. Depending on ethnic group, from four to 14% of humans find cilantro repulsive. Nicholas Eriksson at the consumer genetics firm 23andMe, asked customers whether coriander tasted like soap and whether or not they liked the herb. The researchers identified two common genetic variants linked to people's "soap" perceptions. The strongest-linked variant lies within a cluster of olfactory-receptor genes, which influence sense of smell. One of those genes, *OR6A2*, encodes a receptor that is highly sensitive to aldehyde chemicals, which contribute to the flavor of coriander.

Haikú about Cilantro and Culantro:

Evanescent whiff

Cilantro and Culantro

give my nose a bliss