



Organoleptic Characteristics of Flavor Materials

Focus on essential oils

Gerard Mosciano

Gerard Mosciano is joined by Judith Michalski, chief flavorist, Edlong Flavors; Carl Holmgren, consulting flavor chemist; and Douglas Young, principal flavorist, Symrise, in the organoleptic evaluations presented here.

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Essential oils were once key building blocks in many flavors. They supplied the basis of most natural flavors and were indispensable in many artificial flavors to add necessary depth and characteristics not possible with artificial ingredients. As ingredient suppliers labored to identify the characterizing components of the essential oils, they began to supply these newly identified components in mainly artificial and, finally, in naturally derived versions. Today, now that natural flavors are again in vogue, essential oils are regaining their rightful place on flavorists' shelves.

I am including some of my favorite natural essential oils and derivatives, as well as those I consider to be the most useful. Flavorists should evaluate essential oils continually in order to maintain a group of flavor ingredients that is acceptable for both quality and cost.

Evaluations

Balsam Peru Oil

Source: Robertet

FEMA# 2117, CAS# 8007-00-9

Odor: @ 1.0%. Rich sweet, cinnamic vanilla-like. Upon dryout, it becomes balsamic powdery with a slight floral spicy nuance.

Taste: @ 50 PPM. Slightly bitter, warm balsamic, cinnamic woody, with vanilla and leatherlike nuances.

Possible applications: This ingredient is very useful in re-creating the spicy nuances in vanilla and vanilla bean flavors. Prune and honey flavors, coumarin substitutes, wild or mixed berry nuances, and fruity notes for cherry and strawberry.

► **Robertet**: tel: 33-1-44-95-02-80; www.robertet.com

Bitter Almond Oil

Source: Advanced Biotech

FEMA# 2046, CAS# 8013-76-1

Odor: @ 1.0%. Cherry pit characteristic, sweet fruity, slightly nutty pecan, almond and pistachio.

Taste: @ 20 PPM. Characteristic cherry pit, sweet fruity, slightly creamy almondlike with nuances of pecan and pistachio.

Possible applications: Marzipan, cherry, amaretto and kirsch cordials, fruit punch flavor blends, pistachio, almond flavors, and nuances in grape, cranberry, peach and tropical flavors.

► **Advanced Biotech**: tel: 973-357-0577; www.adv-bio.net



Buchu Leaf Oil

Source: Payan Bertrand

FEMA# 2169, CAS# 68650-46-4

Odor: @ 1.0%. Sulfurous, musty and catty, green,

minty and cooling, slightly camphoraceous, fruity and berrylike with nuances of black currant, peach and apricot, tropical top notes.



Taste: @ 0.5 PPM. Minty, camphoraceous, sweet black currant, berry cattylike, tropical guava, fruity apricot, peach with green herbal nuances.

Possible applications: This source of sulfur notes is strictly fruity in nature. It can find applications in peach and apricot, mint enhancers, raspberry and black currant, grapefruit, strawberry, tropical flavors such as mango and guava, and herbal nuances. Today, its main organoleptic contributing ingredients—p-mentha-8-thiol-3-one, diosphenol, 8-(acetyl thio)-menthone, menthone and iso menthone—are becoming commercially available.

► **Payan Bertrand**; tel: 33-04-93-40-14-14;
www.payanbertrand.com

Coffee Oil

Source: Artiste Flavor/Essence Inc.

CAS# 8001-67-0

Odor: @ 1.0%. Ashy, roasted woody and beany coffeelike with slightly burnt Italian/French roast notes. It is brown with a slight sulfurous top note and a caramel drydown note.

Taste: @ 5–10 PPM. Roasted dark coffee, burnt, earthy, beany and nutty, slightly sulfurous with an astringent aftertaste.

Possible applications: Coffee enhancers, roasted nut notes, roasted meaty nuances for pork and beef, mocha and cocoa notes, chocolate, caramel burnt notes, and coffee cordials. It finds many of the same applications as roasted sesame oil.

► **Artiste Flavor/Essence Inc.**; tel: 201-244-0403;
www.artisteflavoressence.com

Davana Oil*

Source: Plant Lipids of India
FEMA# 2359, CAS# 8016-03-3

Odor: @ 1.0%. Sweet ripe fruity, woody, ripe apple, dried fruit reminiscent of prune, raisin and apple butter, preserved fruit with pronounced ripe apricot and peach notes.

Taste: @ 5 PPM. Sweet ripe fruity and brown, woody, brown jammy fruity, reminiscent of raisin, prune and apple butter with peach and apricot notes.

Possible applications: This product is among my favorites. Almost any fruit can be improved with its application. It has been used traditionally for red berry enhancers and dried fruit applications such as raisin, date, prune, tobacco, and jammy nuances for strawberry, plum, peach, apricot and blackberry, as well as some tamarinds and tropical ripe nuances.

► **Plant Lipids of India**; tel: 91-484-2760395;
www.plantlipids.com



Attention, Perfumers

Although Gerard Mosciano's column focuses on the odor and taste characteristics of flavor materials, many of these ingredients also can be used for fragrances. If you are a perfumer, make sure to check out Mosciano's column in every issue of *P&F* magazine for unique ingredients to be used in the fragrance field! These materials will be noted with an asterisk.

Fennel Sweet Oil

Source: International Flavors & Fragrances
FEMA# 2483, CAS# 8006-84-6

Odor: @ 1.0%. Sweet anise, licoricelike, candylike, ouzo cordial-like with a full-bodied woody herbal root beerlike nuance.

Taste: @ 10 PPM. Sweet anise, woody, slightly green herbal, methyl chavicol-like with licorice and root beer nuances, and a lingering sweetness.

Possible applications: Anise is one of those essential oils that you either love or hate. I happen to love anything containing anise oil. I have used it extensively in licorice confections, in oral care products as a sweetener and as a flavor contributor in root beer flavors. It can be used as a trace component in black cherry flavors. It also works well in bitterness modifiers.

► **International Flavors & Fragrances**;
tel: 732-329-4600; www.iff.com



Neroli Oil*

Source: Robertet
FEMA# 2771, CAS# 8016-38-4

Odor: @ 1.0%. Floral geranium, citrusy, slightly woody with tropical and fruity nuances.

Taste: @ 10 PPM. Floral rose, woody citrus and tealike with dry tutti-frutti and herbal notes, and underlying nuances of orange marmalade.

Possible applications: I first encountered this ingredient many years ago. It was used in many flavor keys that were incorporated into tutti-frutti blends, as well as in blenders for citrus nuances for many pound cake and other citrus flavors. It also finds applications at trace levels in apricot, peach, pineapple and Earl Grey tealike flavors, as well as for floral nuances.

► **Robertet**; tel: 33-1-44-95-02-80;
www.robertet.com



*This material also can be used in fragrance formulations.

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Peppermint Oil Redistilled

Source: I.P. Callison & Sons

FEMA# 2848, CAS# 8006-90-4

Odor: @ 1.0%. Sweet minty, cooling, clean, fresh, candy cane peppermint with a spicy nuance.

Taste: @ 10 PPM. Sweet menthol, cooling and fresh, smooth, slightly creamy and candylike.

Possible applications: In my training I was told that a little bit of peppermint oil will enhance the brilliance and lift of many flavors. Today, there are many versions and grades of this oil. I have used this product for the obvious oral care, confections and chewing gum flavors, as well as for spice blends and nuance flavor enhancers. Peppermint blends well with today's supercoolants to offer initial cool impact, as well as lingering trigeminal cooling aftertastes.

► **I.P. Callison & Sons**; tel: 360-412-3340; www.ipcallison.com

Wintergreen Chinese Oil

Source: Citrus & Allied Essences Ltd.

FEMA# 3113, CAS# 68917-75-9

Odor: @ 1.0%. Sweet, salicylatelike, spicy, fresh and clean, root beerlike with slight

cooling minty and bubble gumlike nuances.

Taste: @ 15 PPM. Sweet root beer, minty, salicylate with fresh and aromatic nuances.

Possible applications: Root beer, confections and pink bubble gum notes, oral care products such as toothpaste and mouthwashes, tutti-frutti nuances. Keep in mind that not all nationalities share the United States' appreciation for this oil. Europeans are not enamored with this ingredient.

► **Citrus & Allied Essences Ltd.**; tel: 718-343-0030; www.citrusandallied.com

Citrus essential oils are among the most-used essential oils in flavor creation. They fulfill many flavor roles and are utilized in the widest range of finished applications. Orange, lemon, lime, mandarin, grapefruit and tangerine come in as many forms and variations as there are sources for these oils. These citrus essential oils usually are available as a USP (single fold) and then proceed to fivefold and tenfold. They are available in terpeneless versions and now are becoming available in hydrocarbon-free products that increase their utility. Because these oils are subject to natural calamities, maintaining alternate suppliers is crucial. Alternate supplier lists should combine the talents of instrumental analysis, as well as creative organoleptic input.

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