

Honeysuckle in Perfumery and Cosmetics

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Honeysuckle belongs to the family of floral odors like lilac and lily of the valley for which there are no natural material available and are considered important in perfumery. In the past, honeysuckle absolute produced commercially in small quantities was used in deluxe fragrances. The advent of aromatic chemicals enabled the perfumer to develop synthetic compounds, which are now used in perfumery.

Origin, Production and Composition

Honeysuckle, *Lonicera caprifolium* L., originated in Asia Minor.¹ Another species of honeysuckle is *Lonicera gigantea* L. (family Caprifoliaceae). A number of different species of *Lonicera* are growing wild or are cultivated in many countries of the world.²

Lonicera caprifolium L. and *Lonicera gigantea* L. were used in the past to obtain the flower oil. The latter was extracted in South France with petroleum ether and yielded 0.33 percent of a concrete which on treatment with alcohol gave 23.8 percent of a viscous olive-green absolute. The steam distilled oil of this absolute was a yellowish liquid and its yield was nine percent.³

Little is known of the honeysuckle flower oil composition. In a steam distilled *Lonicera gigantea* L. oil, neither aldehydes, ketones, nor nitrogenous compounds were found.⁴

Synthetic Compounds

Early synthetic honeysuckle compounds were based on mimosa absolute and other flower absolutes, as the following formulas illustrate:⁵

Honeysuckle I

Mimosa absolute, 250 cm ³	Phenyl ethyl alcohol, 75 cm ³
Mimosa synthetic, 50 cm ³	Linalool, 25 cm ³
Jasmin absolute, 150 cm ³	Vanillin, 25 gr
Neroli oil natural, 75 cm ³	Benzoin resinoid, 100 gr
Narcissus absolute, 50 cm ³	Phenylacetaldehyde, 10 gr
Terpineol, 125 cm ³	Aldehyde C-9, 10 gr
Hydroxycitronellal, 25 cm ³	Alcohol C-9, 5 gr

The next formula illustrates a bolder use of the early available aromatic chemicals.

Honeysuckle II

Mimosa absolute, 125 cm ³	Methyl para-cresol, 50 gr
Benzyl isoamyl ether, 500 gr	Terpineol, 50 cm ³
Phenyl ethyl alcohol, 75 cm ³	Hydroxycitronellal, 10 cm ³
Benzyl isoeugenol, 50 cm ³	Tolu and benzoin resinoids, 90 gr
Vanillin, 50 gr	

In later synthetic honeysuckle compounds, aromatic chemicals formed the base, and the absolute flower oils were used in smaller amounts, as illustrated below:⁶

Honeysuckle No. 11

Hydroxycitronellal	10.0
Jasmin synthetic with indol	70.0
Alpha amyl cinnamic aldehyde	10.0
Dimethyl benzyl carbonyl acetate	2.0
Dimethyl octanyl phenyl acetate	2.0
Jasmin absolute	1.0
Ylang ylang	1.0
Rose absolute	1.0
Hydrodor fleurs d'oranger	1.0
Neroli Bigarade	1.0
Aldehyde C-8, 10%	0.5
Aldehyde C-10, 10%	0.5
	100.0

Honeysuckle

Honeysuckle No. 12

Hydroxycitronellal	20
Phenyl ethyl alcohol	20
Linalool	26
Alpha ionone white	10
Citronellol	5
Dimethyl benzyl carbonyl acetate	5
Jasmin absolute	3
Benzyl Acetate	2
Hydrarome fleurs d'oranger decolorized	2
Methyl naphthyl ketone	2
Rosacetol	2
Rose absolute	1
Anisic aldehyde	1
Musk verdur� No. 2 (R. Cerb.)*	1
	100

Musk Verdur  No. 2*

Musk ambrette	71.50
Phenyl acetic acid	14.25
Coumarin	14.25
	100.00

In general, honeysuckle is considered to belong to the jasmin family of odors, but some perfumers include honeysuckle in the narcissus family, as reflected by the following formula:⁷

Honeysuckle 1

Isobutyl phenyl acetate	200
Cinnamic alcohol	185
Ionone	160
Neroli synthetic	80
Jasmin synthetic	65
Rhodinol	60
Heliotropin	45
Isoeugenol	25
Jasmin absolute	10
Fleurs d'oranger absolute	10
Vanillin	10
Aldehyde C-12, 10%	10
	860

Gradually, less expensive honeysuckle compounds have been developed, containing more aromatic chemicals.

The following conventional illustrative formulas may serve as examples.

Honeysuckle No. 1

150 Phenyl ethyl alcohol
150 Hydroxycitronellal
150 Jasmin synthetic
80 Amyl salicylate
50 Bergamot
50 Alpha ionone
50 Citronellol
40 Linalool
40 Isobutyl benzoate
40 Aldehyde C-9, 10%
30 Methyl anthranilate
30 Phenyl ethyl acetate
30 Coumarin
25 Para-cresyl phenyl acetate, 25%
25 Para-cresyl acetate, 10%
20 Methyl phenyl acetate
20 Vanillin
15 Petitgrain
3 Aurantol
998

Honeysuckle No. 3

300 Hydroxycitronellal
300 Phenyl ethyl alcohol
100 Jasmin synthetic
100 Dimethyl octanol
100 Neroli synthetic
100 Bergamot
100 Amyl benzoate
80 Alpha-ionone
80 Coumarin
80 Aurantol
60 Isobutyl benzoate
60 Vanillin
40 Isoeugenol
40 Methyl anthranilate
40 Methyl phenyl acetate
40 Methyl salicylate, 10%
40 Aldehyde C-9, 10%
30 Para-cresyl phenyl acetate, 25%
30 Para-cresyl acetate, 10%
20 Phenyl ethyl acetate
1740

Honeysuckle No. 2

250 Dimethyl benzyl carbinol
150 Hydroxycitronellal
150 Terpineol
125 Alpha-amyl cinnamic aldehyde
85 Phenyl ethyl alcohol
50 Methyl ionone
50 Benzyl acetate
50 Cinnamic alcohol
30 Guaiacwood acetate
25 Phenyl ethyl isobutyrate
8 Methyl octine carbonate
8 Phenyl ethyl acetate
4 Alcohol C-11, 10%
985

Honeysuckle No. 4

200 Jasmin synthetic
100 Hydroxycitronellal
60 Phenyl ethyl alcohol
60 Citronellol
60 Aurantol
30 Linalool
30 Musk ketone
20 Linalyl acetate
20 Ylang
580

The following formula illustrates a conventional honeysuckle floral bouquet:

Honeysuckle No. 5

200 Terpineol
150 Amyl salicylate
125 Jasmin synthetic
70 Hydroxycitronellal
50 Heliotropin
25 Cinnamic alcohol
25 Phenyl ethyl alcohol
20 Vanillin
20 Phenylacetaldehyde 50% in phenyl ethyl alcohol
20 Citronellol
15 Ylang
10 Musk ketone
10 Linalyl acetate
4 Aldehyde C-12 (L)
2 Methyl ionone
2 Orange oil sweet
2 Coumarin
750

Basically, honeysuckle compounds are built on lily of the valley or its components, combined with jasmin or its constituents, and rose or its alcohols. Ionones have been used in the past. Among addi-

tional components are neroli or orange flower, or their constituents, cinnamic alcohol, isoeugenol or eugenol, ylang, aromatic carbinols and their acetates, phenyl ethyl acetate and other derivatives, and p-cresol esters. For the top note, linalyl acetate, bergamot or other citrus oil, and aldehydes C-9 to C-12, supported by corresponding alcohols.

In earlier honeysuckle compounds natural musk was used as fixative, later crystalline aromatics, i.e. musk ketone, musk ambrette, heliotropin, and vanillin appeared in such formulas. When macrocyclic musks became available, they replaced the natural musk. Among other fixatives are resinoids tolu, styrax, and olibanum. Jasmin, mimosa, rose, tuberose, and violet leaves absolute were used in small amounts.

In more modern honeysuckle compounds, new aromatics discovered in jasmin, rose, and tuberose, i.e. methyl dihydro jasmonate (hedione), pentyl-cyclopentenone (delphone), cis-jasmone lactone, damascenones, especially beta damascenone (2,6,6-trimethyl-trans-crotonyl-cyclo hexadiene,1,3), rose oxides, nerol oxide, and docedien-4-olide ketone (tuberolactone) may be used to advantage.

The use of hydroxycitronellal in honeysuckle compounds made it unsuitable for creams and soaps. Cyclamen aldehyde, lilial, and lylal became hydroxycitronellal replacements. Among newer aromatics are cis-dihydro shiseol (Mayol-Firm.) dupical (Naarden), and bourgeonal (Naarden).

Among newer aldehydes, cis-4-decenal (Bedoukian), trimethyl decadienal (Trimenal—Firm.), and trimethyl undecadienal (Oncidal-Dragoco) may be mentioned. Hexenol and its esters, 2-trans-6-cis nonadien-1-al, and 2-nonyl-1-al dimethyl acetal brought new possibilities in the green-folial-fruity notes. Nitriles, among them nonyl nitrile of an orange-aldehyde odor, are stable replacements for the citrus oil.

Among newer aromatics in the coumarin odor tonality are: 3-oxa-10-ethylidene-tricyclo (6,2,1,0) undecan-4-one (Florex-Firmenich), and 6-amyl alpha pyrone.⁸ Among the more recently used aromatics, furan derivatives and diverse pyrazines, especially isohexenyl methoxy pyrazine and isobutyl methoxy pyrazine, may be mentioned.

In modernizing conventional honeysuckle compounds, today's perfumer has to eliminate some of the previously used perfume materials because of

dermatological considerations. Some of these materials are coumarin, musk ambrette, heliotropin, methyl heptene carbonate and phenyl acetic acid. Other aromatics still can be used in limited amounts, i.e. cinnamic alcohol, dimethyl anthranilate, hydroxycitronellal and isoeugenol, or in purified form, i.e. bergamot and styrax resinoid, farnesol 96%; with quenchers—phenylacetaldehyde.

Application

Honeysuckle is very seldom found as a fragrance per se. One example was its use among other florals in innovative single flower perfumes without alcohol, developed in Germany during World War II. Such honeysuckle fragrances usually contained a large amount of terpineol and were fixed with synthetic civet.⁹ Among later attempts, Honeysuckle fragrance by Avon in the sixties may be cited.

Honeysuckle serves mostly as a valuable component of past and present fragrances. Among the former, Quelques Fleurs, and Coeur de Jeanette may be mentioned; among more recent fragrances are Tatiana, Sikkim, Christian Aujart, Première and Cristalle, to cite a few. The return to romantic fragrances during the later 1970s saw the increased use of honeysuckle.

In cosmetics, honeysuckle has been used as a cream fragrance. It also was an important soap fragrance, and is still used in today's scented soaps, such as Puig or Belgian Chèvrefeuille (Honeysuckle) soaps.

In our modern times, honeysuckle fragrances are used in air fresheners.

References

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