

Hyacinth in Perfumery

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According to one writer on mythology, the hyacinth flower sprang up from the blood of a Greek youth Hyacinthus who was killed in a game of discus throwing, and whom the god Apollo loved.¹

Botanical Origin

In the past, two varieties of hyacinth flower were used for the extraction of the flower oil:² *Hyacinthus orientalis* L. and *Hyacinthus non scriptus* L. The first variety is cultivated and the second grows wild in South France. Holland is another country cultivating hyacinth.

Through the ages, a number of plants have been identified as hyacinth, and Linnaeus included fifty more or less related plants in the genus *Hyacinthus*. Modern botanists consider only *Hyacinthus orientalis*, which originated in Asia Minor and spread into cultivation in the fifteenth century, as *Hyacinthus*.³

Mode of Production, Yield and Type of Oil

The old method of extraction of the flower oil was enfleurage (cold fat). A more modern method was the use of volatile solvents, yielding concretes, and on treatment with alcohol, absolute oils.

The wild growing hyacinth flowers were extracted in South France in the early 1920s.⁴ The odor of the wild hyacinth flower oil was more flowery and fresh than that of the cultivated flower oil. The Dutch hyacinth absolute had a greener and more powerful odor than the French.

Using petroleum ether as a solvent, cultivated hyacinth flowers in the Grasse region of South France gave a yield of 0.13 to 0.22 per cent of concrete which on treatment with alcohol gave from 10 to 14 per cent of the absolute oil. The

yield for the wild growing hyacinth was slightly higher, i.e., 0.19 to 0.23 per cent of the concrete.⁵

The production of hyacinth flower oil has completely disappeared both in France and in Holland. Synthetic hyacinth compounds and specialties are now used in perfumery.

Chemical Composition

In the first decade of this century, the following components of hyacinth absolute Dutch were reported:⁶

benzyl benzoate
benzyl alcohol (?) in free form
cinnamyl alcohol (?) in ester form
vanillin (?)
a basic substance (?), which did not contain nitrogen and was fluorescent

By the middle of the century, additional components had been identified in hyacinth concrete Dutch:⁷

benzyl acetate	n-heptaldehyde (?)
cinnamyl acetate	eugenol
methyl-(or ethyl)-o-methoxy benzoate	methyl eugenol
cinnamyl alcohol	hydroquinone
n-heptanol (?)	hydroquinone dimethyl ether
phenyl ethyl alcohol	benzoic acid
benzaldehyde	dimethyl anthranilate
cinnamaldehyde	

No lactones were identified.

New hyacinth specialties having a more natural odor were later offered by Polak Frutal Works, described as being developed based on the firm's experience of hyacinth absolute. However, no new data on hyacinth absolute have been published to this writer's knowledge, either pertaining to the above or in general in the years that followed.

Synthetic Compounds

Bromstyrol in combination with phenyl acetic acid has been used as a base for synthetic hyacinth. Later, bromstyrol was replaced by cinnamic alcohol and its esters. In variations such as blue hyacinth, dimethyl benzyl carbinyl acetate has been used in conjunction with phenyl acetic acid to obtain the pungent green-herbal hyacinth note.

In more recent times, phenyl acetaldehyde and benzyl alcohol combined with cinnamic alcohol and terpineol formed the base of hyacinth compounds. Dimethyl hydroquinone, galbanum, styrax and tolu resinoids, guaiacwood and heliotropin were used as fixatives. Among trace components, cuminic aldehyde may be mentioned.

In general, jasmin, rose, lilac and lily of the valley components combined with a green-herbal note will produce a hyacinth note.

Hyacinth absolute has been used in small amounts in various fragrance types. Today, hyacinth specialties, synthetic hyacinth or its components, including novel aromatics, are used in perfumery.

A few illustrative conventional hyacinth formulas are seen Formulas 1, 2 and 3.

In more modern hyacinth compounds, hydroxycitronellal is being replaced by cyclamen aldehyde derivatives or other hydroxycitronellal substitutes. Cinnamic alcohol, limited in use because of dermatological consideration, may be replaced by cinnamic esters combined with purified styrax. In soap fragrances, styrax and rosacetol are used. The fresh, pungent, green odor of phenyl acetaldehyde, which is deemed a sensitizer, is difficult to replace. A combination of newer oxyaldehydes may be helpful as are phenylacetaldehyde dimethyl acetal and mixed acetals, p-isopropyl acetaldehyde, and some cis-hexenol derivatives, including cis-hexenyl-oxy-acetaldehyde.

Isopropyl aldehyde is often used in bath and soap hyacinth perfumes because of its stability. Styrallyl acetate is used to advantage in cream fragrances, and phenyl ethyl acetate is a good fixative in powder perfumes. Phenyl propyl alcohol may also be included. P-cresyl esters, i.e., acetates and isobutyrate may be used in small amounts in hyacinth compounds in conjunction with linalool and terpineol.

Aldehydes C-8, C-9 and C-10, as well as alcohol C-8 may be used for the top note. Phenyl ethyl isobutyrate and aldehyde C-16 contribute to the fruity odor tonality. Phenyl ethyl acetate acts both as sweetener and fixative. Synthetic amber compounds, civet and synthetic musks are other fixatives used.

Formula 1	
	<u>Grams</u>
Jasmin synthetic	180
Phenyl acetaldehyde 50% in phenyl ethyl alcohol	100
Linalool	100
Heliotropin	100
Eugenol	50
Phenyl ethyl alcohol	50
Hydroxycitronellal	50
Styrax purified	50
Cinnamic alcohol	25
alpha-Ionone	20
Rose Otto synthetic	<u>20</u>
	745

Formula 2	
	<u>Grams</u>
Benzyl acetate	300
Phenyl ethyl alcohol	150
Terpineol	100
Styrax purified	65
Hydroxycitronellal	50
Phenyl acetaldehyde 50% in phenyl ethyl alcohol	50
Cinnamic alcohol	35
Eugenol	30
Citronello	30
Ylang ylang	25
Bergamot	20
Benzyl salicylate	20
Linalool	15
Phenyl propyl aldehyde	15
alpha-Ionone	10
Anisic aldehyde	5
Vanillin	<u>5</u>
	925

Formula 3	
	<u>Grams</u>
Heliotropin	160
Benzyl acetate	120
Jasmin synthetic	120
Phenyl ethyl alcohol	120
Styrax purified	80
Phenyl acetaldehyde 50% in phenyl ethyl alcohol	80
Hydroxycitronellal	75
Linalool	60
Terpineol	60
Eugenol	50
Cinnamic alcohol	35
Cyclamen aldehyde	35
Geraniol	15
Ylang ylang	<u>10</u>
	1020

Among newer aromatics, several hexenol esters and derivatives impart green and fruity odor

tonalities. Methyl dihydrojasmonate may be part of a jasmin compound or may be used per se in a synthetic hyacinth. Similarly, rose oxides, damascones, and damascenones may be part of rose compound, or be used per se. Pyrazine derivatives are more recent aromatics used in perfumery, and 5-isopropyl-2-methyl pyrazine of a green odor tonality may find use in hyacinth compounds.

A group of norbornyl cyclohexanone derivatives have been investigated in the Soviet Union, and some have been found to possess fresh-green odors, among them 2-methyl-6-norbornyl cyclohexanone.⁸

Several hyacinth specialties have been developed, among them hyacinth aldehyde and alcohol types. The former was based on phenylacetone (Fries), and the latter was a combination of the former with cinnamic alcohol, containing a small percentage of p-cresyl acetate, in addition to the usual hyacinth components.

More modern hyacinth specialties are: Jacinthique (orig. PFW) and Jacinthique for soap (orig. PFW). These specialties are claimed to be patterned on hyacinth absolute Dutch. The odor of the modern hyacinth specialties is less harsh and is more natural than that of earlier hyacinth specialties.

Application

Hyacinth absolute, a very expensive flower oil, was used in high class fragrances and other floral perfumes. It has now been replaced by synthetic hyacinth compounds.

During the thirties, floral fragrances were in vogue, and Blue Hyacinth (Ann Haviland) was among them. Of the more sophisticated fragrances of the same period. Joy, based on a jasmin-rose theme in which phenyl acetaldehyde plays an important role, and later Replique containing hyacinth components may be cited.

Before World War II, innovative perfumes without alcohol were developed in Germany using diethyl phthalate or castor oil as solvents. Among other floral fragrances offered was synthetic hyacinth.⁹

The first American designer fragrance of the late 1960s, Norell is an interpretation of carnation and hyacinth. The pungent floral-green top note was in vogue in the 1970s, and several fragrances of this period contain hyacinth notes: Nuance and Sweet Earth Hyacinth cologne (Coty), Vôte (Jourdan), Grain de Sable (Verfaillie), Cabriole (Arden), Azzaro (L. Azzaro). Among later fragrances are Tamago (Leonard), Armani, Fleur de Fleurs, K de Krizia, Cristalle (Chanel) and Pavlova (Payot).

Hyacinth compounds find use as components of other floral compounds, i.e., narcissus and sweet pea, to mention two.

Inexpensive hyacinth compounds have been export fragrances, especially to India.

Synthetic hyacinth compounds have been used in cosmetics, lipsticks, creams, powders, hair oils, brilliantines, and soaps.

Today, hyacinth compounds or their components are still used in cosmetic, toiletry and soap fragrances, but mostly as components of sophisticated fragrances adapted to the line.

References

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