Cedarwood and Derivatives in Perfume Compounds, Part II

by Danute Pajaujis Anonis

In the previous article on cedarwood (Perfumer & Flavorist magazine, May/June 2001), we discussed different cedarwood oil types and various cedarwood derivatives. In this article, we will look at the use of cedarwood and its derivatives, as well as specialties in various types of fragrances.

Cedarwood has a tenacious, balsamic, sweet, woody odor. It enhances the lasting power of natural and synthetic fixatives and also intensifies their odor. The oil improves upon aging when kept in airtight containers protected from light. Cedarwood has points in common with the odors of oakmoss and fougère and, to a lesser extent, with tea rose and citrus fruit and leaf odors.

Cedarwood oil is used in various types of women and men's fragrances, including eau de parfum and toilet water. It also finds application in cosmetic fragrances (lipstick, cream, powder, and so forth) and in soap fragrances, as well as in various household product perfumes.

Powdered cedarwood was a component of a pine type of incense powder produced in the United States, along with other odor types. These incense powders were in vogue up until the mid-1930s.[1] Cedarwood perfume compounds, per se, have not been developed, except for tobacco aromatization and mosquito repelling compositions, nor have cedarwood imitations been built. However, cedarwood plays a role in sandalwood, patchouli and vetiver imitations.

Here are a few examples of earlier formulas:

Sandalwood Synthetic	
Santalol	400
Balsam copaiba	300
Cedarwood	300
	1,000

Vetiver Synthetic	
Vetiver	450
Cedarwood	350
Balsam copaiba	200
	1,000

In the past, cedarwood and/or its derivatives were also used in various specialties, including Cedrenon (obtained from cedarwood Florida, with a pleasant non-intrusive yet long-lasting woody odor), and Cedarome (containing cedrenol, of a woody, powdery character). Let us now take a look at few conventional fragrance types containing cedarwood or its derivatives.

Chypre I[2]	
Oakmoss resinoid	50
Bergamot	225
Vetiver bourbon	75
Lavender	50
Cedarwood	70
Patchouli	10
Clove	35
Jasmine synthetic	100
Rose synthetic	80
Isobutyl salicylate	70
Cinnamic alcohol	50
Heliotropin	100
Coumarin	50
Resinoid tonka	20
Aldehyde C-12 (MNA)	15
	1,000

Perfume Oil No. 298[3] [Dans la Nuit (Worth) Type]	
Methyl ionone	350
Vetiver	50
Cedarwood	60
Orange bitter	100
Neroli synthetic	40
Tonka liquid	35
Heliotropin	70
Rose synthetic	65
Jasmine synthetic	60
Carnation synthetic	60
Isobutyl salicylate	40
Musk ketone	30
	1,000

Woody Bouquet No. 7	
Methyl ionone	100
Lily of the valley compound	80
Cedrenyl acetate	60
Sandalwood E.I.	50
Cedrenol	40
Jasmine synthetic	40

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Isopropyl hydrotropic aldehyde 10%	30
Musk ketone	30
Rose synthetic	20
Patchouli	20
Dimethyl benzyl carbinyl acetate	20
Ylang ylang	16
Vetiver bourbon	16
Fleurs d'orange synthetic	10
Aldehyde C-11 (enic) 10%	10
Aldehyde C-12 (MNA) 10%	6
Cedarleaf 10%	6
Sage clary	6
Macrocyclic type musk	60
Amber synthetic	50
Oakmoss decolorized	30
	700

Before World War II, perfumes without alcohol were innovated in Germany, among them sandalwood perfume types. The solvents used were diethyl phthalate, castor oil, etc. An example of such sandalwood type containing cedarwood is:

Sandalwood Perfume Compound[4]	
Sandalwood	850 cm^3
Cedarwood	50 cm^3
Phenyl ethyl alcohol	50 cm^3
Rose red synthetic	35 cm^3
Musk ketone	10 g
Aldehyde C-16	5 g

Men's fragrances traditionally contain woody components, among them cedarwood or its derivatives. Few examples of conventional woody types are:

Bois d'Inde 8[5]	
Sandalwood E.I.	115
Cedrol crystals	75
Methyl ionone	75
Cypress oil	38
Ylang ylang	25
Geranium	25
Patchouli	15
Vetiver	75
Rose synthetic	300
Geranyl acetate	25
Amber synthetic	30
Ethyl vanillin	12
Coumarin	25
Musk ambrette	30
Musk xylol	25
	890

Pagodes[6]	
Sandalwood	150
Methyl ionone	100
Cedrol	35
Cedryl acetate	35
Bergamot	170
Civet absolute	30
Caraway	20
Bois de rose	75
Rose oil	5
Lavender	50
Coumarin	95
Vanillin	5
Opoponax resinoid	75
	865

Here is a base, which could be used in a men's fragrance:

Woody Base No. 8	
Cedrenol	300
Cedrenyl acetate	250
Cedarwood	150
Methyl ionone	100
Phenyl ethyl alcohol	50
Linalool	50
	900

An example of a men's woody fragrance type:

Vetiver Bouquet No. 9	
Vetiver bourbon	400
Cedryl acetate	150
Amber synthetic	120
Methyl ionone	120
Patchouli	80
Cedarwood	30
Geraniol	20
Musk ketone	20
Mouse de chêne 50%	20
	960

Spicy odor types were also part of men's fragrances. Here is an example:

Spice Bouquet No. 10	
Amyl salicylate	100
Benzyl salicylate	65
Eugenol	75
Geraniol	65
Methyl eugenol	50
Coumarin	50
Heliotropin	50
Ethyl vanillin	50
Labdanum absolute	50
Bergamot	40
Cedarwood	35
Terpinyl acetate	35
Phenyl ethyl alcohol	25
Guaiacwood	25
Tolu resinoid	25
Lilial	20
Cedrenol	15
Methyl ionone	15
Musk ketone	20
	810

Tobacco-type perfumes are among the other types of men's fragrances. The following cedarwood-containing formula serves as an example:

Havana Perfume No. 16	
Sandalwood E.I.	170
Chypre type compound	115
Vetiver	100
Cedarwood	50
Phenyl ethyl alcohol	35
Isoeugenol	30
Lemongrass oil	30
	530

Cedarwood is also a component of perfumes for hair oil, as illustrated by this formula:

Violet[7]	
α-Ionone	60 cm^3
Linalyl acetate	35 cm^3
Ylang ylang	15 cm^3
Benzyl acetate	5 cm^3
Cedarwood	10 cm^3
Bitter almond oil	15 drops

Generally, 0.5 to 1.5 percent of the perfume oil is used.

Cedarwood is the main component of perfume compounds used for the aromatization of tobacco products. Two examples of such compounds are:

Manille II[8]	
Cedarwood	500
Geranium	250
Patchouli	50
Sandalwood	200
	1,000

Fleur de Sumatra[9]	
Cedarwood	500
Lavender	50
Cloves	50
Calamus	30
Methyl isoeugenol	25
Coumarin	200
Eugenol	50
Labdanum resinoid	90
Aldehyde C-16	10
Amber fixative	235
	1,245

Another type of a perfume compound containing cedarwood and citronella is used in mosquito repellent preparations.

Dermatological Considerations

Some components of the given illustrative formulas, which were developed before the advent of dermatological safety considerations of perfume materials, are restricted, and have to adhere to specifications or are prohibited, according to IFRA's recommendations. Among these materials are:

Bergamot: Limited to 2 percent in a fragrance compound at 20 percent concentration in a consumer product used on the skin exposed to sun. For terpeneless bergamot or one with partially removed terpene fraction, this limit is reduced proportionally.

Cassia: Limited to 1 percent in a fragrance compound.

Cinnamic alcohol: Limited to 4 percent in a fragrance compound used at 20 percent in a consumer product.

Hydroxycitronellal: Limited to 5 percent in a fragrance compound.

Isoeugenol: Limited to 1 percent in a fragrance compound used at 20 percent in a consumer product.

Musk ambrette: Should not be used as a fragrance component.

Oakmoss: Limited to 3 percent in a fragrance compound used at 20 percent concentration in the consumer product.

Opoponax: Only opoponax preparations obtained by steam distillation or solvent extraction may be used in fragrance products. Usage is limited to 3 percent in a fragrance compound used at 20 percent concentration in a consumer product.

Application

Besides contributing lastingness and persistence, cedarwood is known to have a rounding effect on chypre, fougère, origan, musk, rose, violet and other fragrance types. We have illustrated in previous pages the use of cedarwood and/or its derivatives in various earlier fragrance types. Most modern women's fragrances, especially those of semi-oriental type of odor, contain smaller or larger amounts of woody notes. Among them are cedarwood and its derivatives. Cedryl methyl ether, used in Opium (YSL), is but one example.

Newer women's fragrances comprising cedarwood are Lalique de Lalique, Hanae Mori, Inspiration (Jourdan), Paradox (Jacomo) and Wild Wind (Gabriela Sabatini), to cite just a few. Of the later women's fragrances, Grain de Folie (Gres), April Field and Baby Doll (YSL) may be mentioned. In conventional men's fragrances, cedarwood has been used in Cuir de Russie, various redwood and woody-earthy bouquets, spicy, and tobacco compositions.

As men's fragrances became more sophisticated, cedarwood remained part of them. In addition, various cedarwood derivatives — including α-cedrene epoxide (of woody, patchouli, ambergris, tobacco and sandalwood odor tonalities) and cedrenyl formate (of woody, vetiver, and amber odor tonalities) — became available. Several more recent men's fragrances containing cedarwood include Halston Z (Halston), L'Homme (Bond), Rocabar (Hermés), Paco Energy (Paco Rabanne), ST Dupont pour Homme, Santos (Cartier), He (Armani), Rochas Man (Rochas), Viking (Royal Copenhagen) and Aqua Nautilus (Mavive).

Cedarwood and/or its derivatives are suitable in lipstick, hair oil and powder perfumes, as previously shown by example. The use of cedarwood and its derivatives in soap perfumes will be the subject of our next article. Woody notes are of importance in perfumery. Therefore, cedarwood and its derivatives are likely to remain valuable components of future fragrances.

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