

Atlas Cedarwood

By Salvatore Battaglia



BOTANICAL NAME

There are several cedarwood oils with different physical and chemical properties. They are often referred to in literature as cedarwood oil. The most important oils are produced from distilling the wood of a number of different junipers and cypresses rather than the true cedars.³

From the Pinaceae family:

- Atlas cedarwood – *Cedrus atlantica* (Endl.) Manetti ex Carrière
- Himalayan cedarwood – *Cedrus deodara* (Roxb. Ex D. Don) G. Don

From the Cupressaceae family:

- Virginian cedarwood – *Juniperus virginiana* L.
- Texas cedarwood – *Juniperus mexicana* Schiede
- Chinese cedarwood – *Cupressus funebris* Endl.
- East African cedarwood – *Juniperus procera* Hochst

SYNONYMS

Atlas cedarwood

Moroccan cedarwood,
Atlantic cedarwood

Virginian cedarwood

cedar oil, Eastern red cedarwood

Himalayan cedarwood

Deodar cedarwood

Texas cedarwood

Mexican cedar, Mexican juniper,
mountain cedar, rock cedar

Chinese cedarwood

Chinese weeping cypress

Atlas cedarwood symbolises the strength, dignity and nobility that all trees have come to play in the human psyche. Susanne Fischer-Rizzi description perfectly describes these formidable attributes of Atlas cedarwood:¹

What the lion is in the animal kingdom, the cedar is among trees. Majestic and full of strength, cedars stand tall in the loftiest regions of the mountains. They demand space for their expansive branches and stand undaunted by the elements in total inner harmony.

It is not surprising that Valerie Ann Worwood associates the character of Atlas cedarwood with strength and courage:²

Cedarwoods are towers of strength in almost all situations, seemingly in total harmony with the forces of nature...Cedarwoods instil confidence and security in people less able to cope with life's stresses and strains and can be a great comfort in times of trouble.

BOTANY AND ORIGINS

Atlas cedarwood

Atlas cedarwood is believed to have originated from the famous Lebanon cedars which grow wild in Lebanon and on the island of Cyprus. These trees are now protected from being felled for essential oil distillation or lumber.⁴ Nowadays, it can be found in the Atlas Mountains of Morocco and northwestern Algeria.³

Atlas cedarwood is related to *C. deodara* and *C. libani*. *C. deodara* is known as Himalayan Cedarwood, which grows at high altitude in the mountains of Himalaya. *C. libani* is known as Lebanon cedarwood and grows wild in the mountains of Lebanon and on the island of Cyprus. The tree is protected by law against felling or any kind of exploitation. Any oil offered as Lebanon cedarwood oil is most likely to be oil distilled from *C. atlantica*.⁴

However, the Atlas cedarwood tree is now on the IUCN Red List of Threatened Species as endangered. The report states that declines of up to 75% in area of its natural occupancy have been estimated in recent years. Recent droughts have led to further declines in many parts of its natural habitat and it is likely to continue if the regional climate continues to become more arid. Without proper management measures in place these negative effects are likely to continue.⁵ Atlas cedar is now widely cultivated in Europe. Much of the Atlas cedarwood oil produced nowadays is from plantation trees.

Virginian cedarwood

J. virginiana is a slow growing evergreen tree with a narrow, dense and pyramidal crown. It grows in a fairly continuous belt running approximately from the central part of Virginia, through North Carolina and the northern edge of South Carolina, into Tennessee, central Kentucky and northern Alabama.⁶

Himalayan cedarwood

C. deodara is a tall, evergreen tree up to 50 m high. It grows extensively on the slopes of the Himalayas in northern India, Pakistan and Afghanistan and is often the most important conifer at elevations of 1650-2400 m.³

Texas cedarwood

J. mexicana is a small alpine evergreen tree up to 6 m tall. It occurs in the southern United States (Texas), Mexico and parts of Central America. In the USA, like *J. virginiana*, it invades abandoned fields and overgrazed rangelands.³

It is small and poor looking relative of the cypress. The oil is steam-distilled from the heartwood of this tree, which is felled exclusively for the purpose of producing the essential oil. This oil is extensively used in perfumery.⁴

Chinese cedarwood

C. funebris is an evergreen tree with a wide distribution in Guizhou, Gansu and Sichuan provinces in the People's Republic of China.³

East African cedarwood

J. procera is a tall tree, up to 30 m or more. It is found in the drier highland forests of East Africa, particularly Kenya at elevations of 1000-3000 m.³

East African cedarwood is steam-distilled from the waste wood in the sawmills of Kenya, where the wood is extensively used for the manufacture of pencils, boxes and wood carvings.³

Most of the East African cedarwood oil is obtained from wild trees but there is little information published on the extent to which essential oil production may have affected the natural resource. In Kenya there is a serious depletion of the wild trees as a result of over-exploitation for timber and oil. American oil production utilizes waste wood from trees felled for timber.³

METHOD OF EXTRACTION

Atlas cedarwood is steam-distilled from either the wood, stumps or from the sawdust. Most of the distillation takes place in Morocco and the northwestern regions of Algeria.⁴

The best quality Atlas cedarwood essential oil is obtained from distilling wood chips from trees that are 20 to 30 years old. The essential oil distilled from the heartwood is considered warmer, more balsamic and aromatic.⁷

Virginian cedarwood oil is obtained by steam distillation of the wood, sawdust, shavings and other lumber wastes of *J. virginiana*.

CHARACTERISTICS

Atlas cedarwood

Atlas cedarwood is a yellowish to orange-yellow or deep amber-coloured, viscous oil that is occasionally turbid. Its odour is described as interesting to say the least – it is not exactly pleasant with a slightly camphoraceous-cresylic top note with a sweet, tenacious woody undertone, reminiscent of cassie and mimosa.³

Virginian cedarwood

Virginian cedarwood oil is a pale yellow to slightly orange-yellow coloured oil that is slightly less viscous than Atlas cedarwood. The odour is at first oily and woody with a sweet balsamic scent typical of cedarwood lumber. The odour becomes drier and more woody, less balsamic as the oil dries out.³

Himalayan cedarwood

Himalayan cedarwood is a yellowish to brownish-yellow oil, which is somewhat viscous and has a rich, sweet-woody, almost balsamic aroma reminiscent of Atlas cedarwood. It has a slightly cresylic-camphoraceous top note, which becomes delicately sweet-woody on its dryout.⁴

Holmes states that the scent of Himalayan cedarwood is similar to Atlas cedarwood, but without the pronounced sweetness and with a stronger dry-woody note.⁸

Texas cedarwood

Texas cedarwood oil is often redistilled. The oil is pale yellow to almost clear with a clean, sweet-woody aroma, which is typical of 'pencil-sharpener' odour.⁴

East African cedarwood

East African cedarwood oil has a very dry-woody, somewhat earthy aroma. It is less balsamic than Virginian cedarwood and more reminiscent of the odour of Texas cedarwood.⁴

CHEMICAL COMPOSITION

The chemical composition of *Cedrus atlantica* essential oil is reported as follows:

Sesquiterpenes (himachalenes 14.5%, α -himachalene 10%, β -himachalene 42%, *cis*-bisabolene 1.2%); sesquiterpene alcohols (himachalol 4%, *allo*-himachalol 2.3%); ketones (α -atlantone 2.65%, γ -atlantone 5%); oxides (himachalene oxide 1%).⁹

Guenther states that *C. atlantica* trees less than 25 years old should not be felled. Older trees will yield about 3.5% of the volatile oil, while younger trees will yield less than 1%. He states that the oil distilled from the older trees and younger trees differs considerably in regard to the odour and chemical composition. Oil produced from older trees is higher in high boiling point constituents while oil from younger trees is richer in cedrol.⁴

ADULTERATION

Lis-Balchin states that all commercial cedarwood oils seem to be blended together because they have similar chemical composition. As they are relatively inexpensive there is no real problem of adulteration with synthetic components.¹⁰ Cedarwood oils are also adulterated by the addition of cedrol from the cheaper cedarwood from Chinese cedarwood oil.¹¹

HISTORY AND TRADITIONAL USES

History

Atlas cedarwood was believed to be used by the ancient Egyptians for embalming purposes, cosmetics and perfumery. The Lebanon cedar was prized as a building wood.¹² The cedar trees were mentioned in the Bible, symbolising everything that was fertile and abundant. Later, Dioscorides and Galen referred to cedar's resin being used to preserve the body from putrefaction.¹³

According to the Song of Solomon, cedarwood was used to build Solomon's temple. Cedarwood symbolised abundance, fertility and spiritual strength. The name *Cedrus* originates from the Arabic word *kedron*, meaning 'power'.¹³

Himalayan cedarwood is a relatively recent addition to the list of cedarwoods produced commercially. Coppen states that essential oil production began in India in the late 1950s and most of the oil produced is consumed domestically.³

Herbal

Decoctions of the leaves, bark, twigs and seeds of *J. virginiana* have been used to treat various illnesses including coughs, bronchitis, rheumatism, venereal warts and skin rashes.¹⁴

Food, perfumery and flavouring

Virginian, Texas and Atlas cedarwood oils are all used as fragrance components or fixatives in cosmetics and household products such as soaps and detergents.¹⁴

Other uses

Most species of cedarwood are utilized for timber purposes. *C. deodara* is considered one of the most valuable Indian timbers that is used for railway sleepers and in construction work requiring beams, posts and frames. It is also used for making pencils. The strong odour of the wood and its oily character limits its use for indoor furniture.³

The wood from *J. virginiana* is highly prized for furniture making. Older trees are preferred since they contain more of the reddish heartwood, which not only gives a beautiful surface when polished, but also yields more essential oil than wood from young trees.² *J. virginiana* has also been used as an insect repellent.¹⁵

THERAPEUTICS

Alopecia areata

C. atlantica essential oil was used in an aromatherapy massage blend for the treatment of *Alopecia areata* – a disorder in which the hair falls out in patches producing baldness. Although the results were variable, the group using the massage blend containing Atlas cedarwood showed a significant improvement of 44%.¹⁶

Antifungal activity

Lis-Balchin states that the antifungal activity of all the cedarwood oils was very low.¹⁰

Anti-inflammatory activity

An in vitro study found that *C. deodara* essential oil demonstrated good inhibition of 5-lipoxygenase. This indicates that it may have anti-inflammatory activity as the mechanism of inflammation begins with the oxidation of the enzyme 5-lipoxygenase.¹⁷

The anti-inflammatory activity of Indian *C. deodara* was investigated in an in vivo study. The oral administration of the essential oil (50 and 100 mg/kg) one hour before the induction of inflammation significantly inhibited induced rat paw oedema. It was concluded that the membrane stabilising activity of *C. deodara* essential oil has a significant role in its anti-inflammatory activity.¹⁸

The study also confirmed that the essential oil suppressed delayed hypersensitivity (Type IV) reactions. It was concluded that the oil produced an inhibitory effect on humoral and cell-mediated immune responses, suggesting an immunomodulatory effect in inflammatory conditions.¹⁹

Antimicrobial activity

Several studies suggest that the antimicrobial activity of cedarwood oils is very low due to the high percentage of inactive sesquiterpenes.¹⁰

Insecticidal activity

C. atlantica oil was one of six mosquito repellent substances tested against four *Anopheles* species. Of these, *A. stephensi* was found to be the most susceptible. It has been reported that cedrol, in particular, seems to have a high toxicity to cercariae (*Schistosoma mansoni*), a parasite for humans. Himalayan cedarwood oil exhibited insecticidal activity against *Callosobruchus analis* F. and *Musca domestica* L.¹⁵

C. deodara oil exhibited promising larvicidal activity against the larvae of *Plutella xylostella*, the diamondback moth, a common pest of cruciferous crops. It was suggested that the oil can be utilised for sustainable pest management which has both economic and ecological benefits.²⁰

Molluscicidal activity

C. atlantica oil was reported to have significant molluscicidal activity. It was suggested that the oil could be effective in combating schistosomiasis.²¹

Actions

Actions commonly cited in aromatherapy

Actions often attributed to the cedarwood oils include antibacterial, anticatarrhal, antiseborrhoeic, antiseptic, astringent, diuretic, expectorant, insecticide, sedative, tonic.^{3,13,22}

Atlas cedarwood is considered a lymphatic decongestant.^{8,22}

Actions supported by clinical studies

Anti-inflammatory, insecticidal

Comment

In aromatherapy, the two most commonly used cedarwood oils are Virginian and Atlas.

While the odour profiles of Atlas, Himalayan and Virginian cedarwood are very different, the cedarwood oils do share similar properties. Holmes states that Atlas cedarwood has a strong calming and stabilising effect on the mind and recommends it for those individuals who feel fatigued and tense at the same time.⁸

AROMATHERAPY USES

Clinical aromatherapy

Lymphatic system

Atlas cedarwood is reputed to encourage lymphatic drainage and stimulate the breakdown of accumulated fats. It is mildly diuretic and may be used for the treatment of cellulite and oedema.²²

Holmes recommends blending Atlas cedarwood with grapefruit as a lymphatic decongestant for swollen glands and lymphatic congestion.⁸

Schnaubelt states that Atlas cedarwood counteracts water and lipid retention and is therefore beneficial for the treatment of cellulite.²³

Nervous system

Atlas cedarwood and Virginian cedarwood oils may be used for reducing stress, anxiety and tension.^{12,22,24,25}

Holmes explains that Atlas cedarwood oil is perfect for those who suffer from stress and tension and weakness at the same time – often associated with chronic conditions that lead to exhaustion and burnout.⁸

Psychological

Holmes states that Atlas cedarwood oil helps to calm the mind and promotes emotional security. He recommends it for anxiety, fearfulness and agitation. He explains that the oil also helps to reduce repetitive and excessive thinking, worry and obsessive thoughts.⁸

Fischer-Rizzi states that Atlas cedarwood oil has a strengthening and comforting effect. She states that it calms during times of fear and nervous tension. In difficult situations, the oil may provide comfort and warmth, and help stabilise energies thrown out of balance.¹

Respiratory system

The presence of sesquiterpene ketones gives Atlas cedarwood oil its excellent mucolytic effect. The oil may be used for treating catarrhal conditions, coughs and chronic bronchitis.^{1,12,24}

The presence of 7 to 10% sesquiterpene ketones gives Atlas cedarwood oil an anti-inflammatory action, which acts in the first phase of inflammation (reduction of globulins) associated with a mucolytic effect. This also gives an effective action in certain affliction such as hay fever. The sesquiterpene alcohols (approximately 7%) take part in decongestive action on the mucosa.⁹

Virginian cedarwood oil is also recommended for treating catarrhal conditions, coughs and chronic bronchitis.¹³

Urinary system

Atlas cedarwood and Virginian cedarwood oils may be used for treatment of cystitis and urinary tract infections.^{1,12,22}

Skin care

Atlas cedarwood and Virginian cedarwood oils are recommended in hair and skin care for improving oily skin, acne, dandruff and seborrhoea of the scalp.^{1,12,22}

They are also reputed to strengthen hair growth and alleviate dandruff.^{1,1}

Energetics, psyche and subtle uses

Energetics

Atlas cedarwood is fortifying and strengthening and it is considered a powerful tonic of the body's *Qi*. The oil is tonifying to both the *Kidneys* and *Spleen-pancreas* and may be used for general lethargy, nervous debility, lower backache and poor concentration. The oil is also effective in treating conditions classified as *cold damp*. It has decongesting qualities and combined with its antiseptic properties it is useful for genitourinary and respiratory infections.²²

Holmes states that Atlas cedarwood nourishes the *Yin*, eliminates *damp* and calms the *Shen*. *Yin* deficiency and agitated *Shen* are associated with anxiety, restlessness, debility and burnout.⁸

Mojay also explains that Atlas cedarwood is associated with the Water Element and helps to strengthen the function of the *Kidneys*. In TCM, the energetic function of the *Kidneys* is associated with our *Zhi* or our willpower. He also explains that while ginger stimulates the willpower into action, Atlas cedarwood gives us the courage and strength to hold firm, even against obstinate external forces.²²

Holmes states that Atlas cedarwood also has an affinity with the Earth element. He recommends the oil for resolving Lung phlegm-*damp* associated with coughing and copious mucous and sputum expectoration.⁸

Personality

Worwood describes the cedarwood personality as someone gliding through life as if they had a royal charter. They may actually appear haughty and just too grand to be approached about anything mundane, but this assumption is usually incorrect as they are a tower of strength in almost all situations.²

*Cedarwood personalities instill confidence and security in people less able to cope with life's stresses and strains and can be a great comfort in times of trouble. This ability puts them in the role of family adviser – the person you phone to ask how to deal with your tax return, or ask how you should approach a financial dispute, however you wouldn't ask them on your choice of friends, or a new outfit.*²

Worwood warns us that cedarwood personalities are not infallible. Often they may be wrong because of their dogmatic views. The older they get, the worse they become. They do not seem to be aware that the world has changed in the last 50 years. If you have this personality for a father or grandfather it can be quite challenging because they often hold the family to emotional and financial ransom. They can become extremely obsessive. Everything has to be in the right place and organized.²

According to Myers-Briggs personality types, the Atlas cedarwood personality is likely to be an INTJ. INTJs are very responsible and dependable. They are people of a very few words and tend to be private. They are punctual, precise and fastidious. They have the ability to concentrate and are difficult to distract. They prefer to work alone and dislike distractions. They are modest, unassuming and down to earth. They can be resistant to change. They can make quick critical judgements of others. They are extremely devoted in their relationships.

Subtle

Atlas cedarwood oil can give us immovable strength in times of crisis. Steadying the conscious mind, it will help us to resist the sudden events and powerful emotions that threaten to undermine our confidence and morale.²²

Holmes states that Atlas cedarwood has a stabilising influence on our energy which is very useful when one is feeling a disconnection from their surroundings or within themselves.⁸

Zeck states that Atlas cedarwood brings strength and commitment when we need to make changes in our lives and move forward.²⁵

Keim Loughran & Bull recommend using Atlas cedarwood whenever we do not feel grounded, whenever we feel negativity from other people or ourselves and during times of spiritual confusion.²⁶

DOSAGE AND ADMINISTRATION

Blending

Aromatherapy

For hair and scalp care and the treatment of seborrheic dermatitis with dandruff, consider blending Atlas cedarwood oil with essential oils such as bay laurel, patchouli or rosemary.

For the relief of anxiety, nervous tension and stress, consider blending Atlas cedarwood oil with essential oils such as bergamot, clary sage, Roman chamomile, lavender, frankincense, geranium, sweet orange, sandalwood, vetiver or ylang ylang.

For insomnia, consider blending Atlas cedarwood with essential oils such as lavender, patchouli, sandalwood or vetiver.

For mucous congestion associated with bronchitis, consider blending any of the cedarwood oils with essential oils such as aniseed, 1,8-cineole-rich eucalypts, broadleaf peppermint eucalyptus, sweet fennel, ginger, sweet marjoram, myrtle or niaouli essential oil.

As a personal insect repellent, consider blending any of the cedarwood oils with essential oils such as 1,8-cineole-rich eucalypts, lemon-scented eucalyptus, citronella, spike lavender, niaouli, peppermint or tea tree.

Perfumery

Atlas cedarwood oil is commonly used in perfumery. For its fixative quality and its unique odour. It blends well with labdanum and all woody-floral essential oils.⁴

Virginian cedarwood is used extensively in perfumery, especially in soap perfumery. It is used as a fixative and cost-reducer for oils such as vetiver, sandalwood and patchouli.⁴

Mode of administration

Bath

Full body bath, foot bath

Topical

Compress, massage, ointment, skin care

Inhalation

Direct inhalation, diffuser, oil vaporiser

SAFETY PROFILE

General safety

Atlas cedarwood and Virginian cedarwood are considered non-toxic, non-irritant and non-sensitising.

Contraindications

Price & Price, Lawless and Fischer-Rizzi say that *Cedrus atlantica* should not be used during pregnancy.^{1,12,27}

C. atlantica oil is also said to have neurotoxic and abortive effects.²⁷

However, Tisserand & Balacs state that Atlas cedarwood is safe to use and it should not be contraindicated during pregnancy.²⁸

Lawless states that Virginian cedarwood should not be used during pregnancy.¹² However, Tisserand & Balacs state that Virginian cedarwood is safe to use and they do not suggest that it should be contra-indicated during pregnancy.²⁸

I believe that Virginian cedarwood is one of those oils whose botanical name may have been confused with savin – *Juniperus sabina*, a highly toxic oil which is contraindicated during pregnancy.

REFERENCES

1. Fischer-Rizzi S. *Complete aromatherapy handbook*. Sterling Publishing, New York, 1990.
2. Worwood VA. *The fragrant mind*. Transworld Publishing, London, 1995.
3. Coppen J. *Flavours and fragrances of plant origin*. Food and Agriculture Organization of the United Nations, Rome, 1995.
4. Arctander S. *Perfume and flavour materials of natural origin*. Allured Publishing, Carol Stream, 1994.
5. Thomas P. *Cedrus atlantica*. *The IUCN Red List of Threatened Species 2013*: eT42303A2979716. <http://dx.doi.org/10.2305/IUCN.IK.2013-1.RLTS.T42303A2970716.en>
6. Guenther E. *The essential oils – Vol. VI*. Robert E. Krieger Publishing, Malabar, 1952.
7. Collins P. *Cedarwood*. *The Aromatherapist*, 1996; 3(2): 30-33.
8. Holmes P. *Aromatica: a clinical guide to essential oil therapeutics – Vol. I*. Singing Dragon, London, 2016.
9. Lawrence BM. *Progress in essential oils*. *Perfumer & Flavorist*, 2012; 37: 42-44.
10. Lis-Balchin M. *Aromatherapy science – a guide for healthcare professionals*. Pharmaceutical Press, London, 2006.
11. Schmidt E, Wanner J. *Adulteration of essential oils*. In Baser KHC, Buchbauer G. eds. *Handbook of essential oils – science, technology and applications*. 2nd edn. CRC Press, Boca Raton, 2016: 707-745.
12. Lawless J. *The encyclopaedia of essential oils*. Element Books, Shaftesbury, 1992.
13. Lavabre M. *Aromatherapy workbook*. Healing Arts Press, Rochester, 1997.
14. Khan I, Abourashed E. *Leung's encyclopedia of common natural ingredients used in food, drugs and cosmetics*. 3rd edn. John Wiley & Sons, New Jersey, 2010.
15. Cetin H et al. *Larvicidal effect of Cedrus libani seed oil on mosquito Culex pipiens*. *Pharmaceutical Biology*, 2009; 47(8): 665-668. doi: 10.1080/13880200902918360.
16. Hay IC, Jamieson M, Ormerod AD. *Randomized trial of aromatherapy – successful treatment of Alopecia areata*. *Archives of Dermatology*, 1998; 134(11): 1349-1352. Cited in the Aromatherapy Database, By Bob Harris, Essential Oil Resource Consultants, UK, 2000.
17. Baylac S, Racine P. *Inhibition of 5-lipoxygenase by essential oils and other natural fragrant extracts*. *International Journal of Aromatherapy*, 2003; 13(2/3): 138-142.
18. Shinde UA et al. *Membrane stabilizing activity – a possible mechanism of action for the anti-inflammatory activity of Cedrus deodara wood oil*. *Fitoterapia*, 1999; 70(3): 251-257. Cited in Quintessential Aromatics database, 2013.
19. Shinde UA et al. *Preliminary studies on the immunomodulating activity of Cedrus deodara wood oil*. *Fitoterapia*, 1999; 70(4): 333-339. Cited in Quintessential Aromatics database, 2013.
20. Chaudhary A et al. *Chemical composition and larvicidal activities of Himalayan cedar, Cedrus deodara essential oil and its fractions against the diamondback moth, Plutella xylostella*. *Journal of Insect Science*, 2011; 11: 157. doi: 10.1673/031.011.15701
21. Lahlou MS. *Composition and molluscicidal properties of essential oils of five Moroccan Pinaceae*. *Pharmaceutical Biology*, 2003; 41(3): 207-210. Cited in Quintessential Aromatics database, 2013.
22. Mojay G. *Aromatherapy for healing the spirit*. Healing Arts Press, Rochester, 1999.
23. Schnaubelt K. *Medical aromatherapy*. Frog, Berkeley, 1999.
24. Davis P. *Aromatherapy A-Z*. 2nd edn. C.W. Daniel Company, Saffron Walden, 1999.
25. Zeck R. *The blossoming heart – aromatherapy for healing and transformation*. Aroma Tours, East Ivanhoe, 2004.
26. Keim Loughran J, Bull R. *Aromatherapy anointing oils*. Frog, Berkeley, 2001.
27. Price S, Price L. *Aromatherapy for health professionals*. Churchill Livingstone, Edinburgh, 1995.
28. Tisserand R, Balacs T. *Essential oil safety*. Churchill Livingstone, Edinburgh, 1995.