



LAKSHA HARIDRADI YOGA IN AIR POLLUTION: A REVIEW

Sunitha G.*¹, Gazala Hussain², Shivani Anil Kumar Chouksey³ and Arya Subhash⁴

¹Assistant Professor, Dept. of Agada Tantra, Sri Dharmasthala Manjunatheswara College of Ayurveda and Hospital, Hassan, Karnataka, India.

²Associate Professor, Dept. of Rasashastra and Bhaishajya Kalpana, Sri Dharmasthala Manjunatheswara College of Ayurveda and Hospital, Hassan, Karnataka, India.

³Assistant Professor, Dept. of Salya Tantra, Sri Dharmasthala Manjunatheswara College of Ayurveda and Hospital, Hassan, Karnataka, India.

⁴3rd Year PG Scholar Dept. of Agada Tantra, Sri Dharmasthala Manjunatheswara College of Ayurveda and Hospital, Hassan, Karnataka, India.

***Corresponding Author: Dr. Sunitha G.**

Assistant Professor, Dept. of Agada Tantra, Sri Dharmasthala Manjunatheswara College of Ayurveda and Hospital, Hassan, Karnataka, India.

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ABSTRACT

One of the greatest problems that the world is facing today is air pollution, increasing with every passing year and causing grave and irreparable damage to the earth. Air pollution has existed for centuries but only started to be significant following the industrial revolution in the 19th century. It exerts harmful effect not only on human health but also destroys the environment which ultimately results in the destruction of life on earth. Ayurveda being the science of life has solution for every problem of life whether it is physical, psychological, social or environmental. The main signs and symptoms of Dooshitha Vayu are kasa, prathishyaya, siroruja and tivra nayana aamaya. Laksha Haridradi yoga is a formulation mentioned for the management of dushita vayu that can be used as a dhoopana. The smoke emitted by the burnt drugs of this formulation should be spread all over to purify the toxic air and smoke.

KEYWORDS: Air pollution, Dooshitha vayu, Dhoopana, Laksha haridradi yoga, Kasa, Prathishyaya.

INTRODUCTION

Air pollution, release of various gases finely divided solids, or finely dispersed aerosols into atmosphere at rates that exceed the natural capacity of environment. These substances may reach concentrations in the air that cause undesirable health, economic, aesthetic effect. It is one of the greatest problems that the world is facing today. Air pollution kills more than 2 million people each year, according to a study published in the journal environmental research letters and it is the most prominent and dangerous form of pollution.^[1] Air pollution is a mixture of natural and man-made substances in the air that one breathes. It is classified into two categories namely outdoor air pollution and indoor air pollution.^[2]

Outdoor air pollution involves exposures that take place outside of the built environment. Examples are fine particles produced by the burning of fossil fuels (i.e., the coal and petroleum used in energy production), noxious gases (sulphur dioxide, nitrogen oxides, carbon monoxide, chemical vapour's, etc.) and Ground-level ozone (a reactive form of oxygen and a primary component of urban smog).

Indoor air pollution involves exposures to particulates, carbon oxides, and other pollutants carried by indoor air or dust. Examples are Gases (carbon monoxide, radon, etc.), house hold products and chemicals, building materials (asbestos, formaldehyde, lead, etc.), Outdoor indoor allergens (cockroach and mouse dropping, etc.), tobacco smoke, mold and pollen.

Types of Pollutants^[3]

- **Primarily air pollutants** can be caused by primary sources or secondary sources. The pollutants that are a direct result of the process can be called primary pollutants.
- **Secondary pollutants** are the ones that are caused by the intermingling and reactions of primary pollutants.

Effect of air pollution

Short-term effects include illnesses such as pneumonia or bronchitis. They also include discomfort such as irritation to the nose, throat, eyes, or skin. Air pollution can also cause headaches, dizziness and nausea. Long-term effects of air pollution include heart disease, lung cancer and respiratory

diseases such as emphysema. Air pollution can also cause long-term damage to people's nerves, brain, kidneys, liver and other organs.^[4,5,6]

According to Ayurveda

In Charak Samhita under the title “Janpadodwamsa”, Acharya has mentioned that the cause of unhealthy environment is the adharma of rulers and residents of that particular area which leads to the impairment of the ecosystem and its components. Sushruta acharya has mentioned that various environmental pollution. During those days it was the duty of royal physician to identify such toxic environment and purify it and also treat the persons affected by such environment.^[7]

Dooshita Vayu lakshana- According to Charaka Acharya^[8]

- Ritu vishama (absence of characteristic features in conformity with season)
- Ati sthimitha (excessive calmness)
- Ati chala (violent blow)
- Ati parushya (excessive dryness)

- Ati seetha (excessive cold)
- Ati-ushna (excessive hot)
- Ati rooksha (excessive roughness)
- Atyabhishyanda (excessive humidity)
- Ati bhairava- Ati prathihatha- Paraspara gati (excessive clashes among each other, wind blowing from one direction clashing with the one coming from the other)
- Ati kundalina (excessive cyclonic in nature)
- Asatmya gandha (unwholesome smell)
- Asatmya sikata (contain sand particles)
- Asatmya paamshu (contain mud particles)
- Asatmya dhooma (unwholesome smoke)

Dooshita vayu lakshana and treatment according to Sushruta^[9]

If vayu is visha dhooshita birds fall of due to srama (tiredness), human beings develop kasa (cough), prathisyaya (rhinitis), siroruja (headache), teevra nayana aamaya (severe eye disease), etc.

Table 1: Ingredients of the formulation of Laksha Haridradi yoga.

Sl. No.	Drugs	Botanical Name	Rasa	Guna	Veerya	Vipaka	Karma
1	Laksha	<i>Laccifer lacca</i>	Kashaya (astringent)	Laghu (light), Snigdha (unctuous)	Sheeta (cold)	Katu (pungent)	Varnya (increases complexion) Balya (strengthening) Kapha pitta samaka (pacifies kaphapitta) Kasaghna (reduces cough), Kushtaghna (anti-leprotic), Krimighna (anti- microbial), Jwarahara (antipyretic), Rakthapittaghna (useful in bleeding disorders)
2	Haridra	<i>Curcuma longa</i>	Tikta (bitter) Katu (pungent)	Laghu (light), Rooksha (dry)	Ushna (hot)	Katu (pungent)	Kapha vata hara (pacifies kaphavata), Krimighna anti- microbial), Kandughna (anti-pruritic), Vishaghna (anti-toxic), Vranahara (wound healing)
3	Athivisha	<i>Aconitum heterophyllum</i>	Katu (pungent), Tikta (bitter)	Laghu (light), Rooksha (dry)	Ushna (hot)	Katu (pungent)	Tridosahara (pacifies all dosha), Vishaghna, Sotha hara, Krimighna (anti-toxic), Kasahara (subsides cough)
4	Abhaya	<i>Terminalia chebula</i>	Pancha rasa except lavana	Laghu (light), Rooksha (dry)	Ushna (hot)	Madhura (sweet)	Tridoshaghna (pacifies all doshas), Kasaghna, Kushtaghna (anti-pruritic), Prajnasthapana, chakshushya, Hridya (cardio protective), lekhana (scrapping), swasahara (reduces dyspnoea), sothahara (anti-inflammatory)
5	Harenu	<i>Vitex negundo</i>	Katu (pungent), Tikta (bitter)	Laghu (light), Rooksha (dry)	Ushna (hot)	Katu (pungent)	Vatakaphahara (pacifies kaphavata), Vishaghna (anti-toxic), Krimighna (anti-microbial), Chakshushya (increases vision), Keshya (promotes hair growth), Vrana ropaka (wound healing)
6	Ela	<i>Elettaria cardamomum</i>	Katu (pungent) Madhura	Laghu (light), Rooksha (dry)	Sheeta (cold)	Katu (pungent)	Kaphavatahara (pacifies kaphavata), Hridya (cardio protective), Swasaghna, Kasaghna (subsides

			(sweet)				cough), Sirasoolahara (reduces headache), Hridrogahara (useful in cardiac ailments), Anga mardahara (analgesic)
7	Kushta	<i>Saussuria lappa</i>	Tikta (bitter) Katu (pungent), Madhura (sweet)	Laghu (light), Rooksha	Ushna (hot)	Katu (pungent)	Kaphavatahara (pacifies kaphavata), Lekhaneeya, Kasahara (subsides cough), Swasahara (useful in dyspnoea), Hridrogahara (useful in cardiac ailments), Kushtaghna (anti-pruritic)
8	Priyangu	<i>Callicarpa macrophylla</i>	Tikta (bitter), Kashaya (astringent), Madhura (sweet)	Guru (heavy), Rooksha (dry)	Sheeta (cold)	Katu (pungent)	Kaphapittahara (pacifies kapha and pitta), Jwarahara (anti-pyretic), Dahahara (reduces burning sensation), Rakthapittaghna (bleeding disorder)

Laksha haridrathi yoga should be burnt and its smoke should be spread all over to purify the toxic air.

DISCUSSION

Air pollution is where undesired release of various gases, finely divided solids, or finely dispersed liquid aerosols are present in the atmosphere at rates that exceed the natural capacity of the environment. These substances may reach concentrations in the air that cause undesirable health effects. Outdoor air pollution is a major environmental health problem affecting everyone in low, middle and high-income countries.^[10,11]

The vayu vishagna yoga contains eight ingredients, among these laksha, ativisha, haridra and harenu have krimighna action. These ingredients help to remove pathogens from air. Haridra, ativisha and nirgundi have vishaghna action that aid in removing toxins from the air. Ativisha and abhaya have tridosahara action that pacifies all the dosha. Abhaya and harenu have Chakshushya action that gives cleansing effect of eyes. Haridra has kandughna action that helps to reduce itching due to air pollutants. Abhaya, ela and kushta have swasaghna action that relieves respiratory difficult due to air pollutants. Kushta, laksha, ativisha, abhaya and ela have kasaghna action that relieves cough due to air pollutants. Abhaya and ela are Hridya. Ela and kushta are Hridrogahara i.e., they reduce the discomfort of heart. Laksha and priyangu have Jwarahara action that helps to relieve from fever due to pollutants. Air pollutants produce skin disease like eczema and psoriasis; kushta, abhaya and laksha act against it due to its kushtaghna property.

Kushta, haridra and ela contains essential oil, due to this essential oil it shows aromatic property. These aromatic plants and their essential oils are good sources of natural antioxidants, such as phenolic compounds, e.g., thymol, carvacrol, polyphenols generally occur as glycosides. These bioactive compounds show therapeutic value, such as antioxidant and antiseptic activities. Thus, they may reduce the risk of cancer or cardiovascular diseases and may find application as treatments in curing or managing a wide range of ailments such as respiratory diseases. So

this will be useful in disease produced by the air pollutants. Generally, the bioactive components in the aromatic plants possess the ability to protect the body from damage caused by free radicals induced oxidative stress by quenching singlet oxygen and inducing cytochrome or other enzymes. It is generally accepted that phenolic compounds having the hydroxyl group attached to a phenyl ring have the greatest antimicrobial activity among the secondary metabolites found in essential oils.^[12]

Aromatic plants such as haridra, ela and kushta and their essential oils are good sources of natural antioxidants, such as phenolic compounds occur as glycosides, although the bioactivity is attributed to aglycon structures and mainly to catechol in aglycons considered that the antioxidant activity of these compounds is due to their high redox properties and chemical structure, which can be responsible for neutralizing free radicals.^[13]

CONCLUSION

Air pollution has long been is a serious problem in the world. Atmospheric pollution has to be considered nowadays as one of the main characteristics of areas where, worldwide, human population density is at high level. The ill effectsn of polluted air are plenty that cause harmful effects to human. Ayurveda literature has mentioned ways of combating the dushita vayu. In it Laksha Haridradi yoga is one such formulation that is mentioned. Fumigation of it is said to reduce the vitiation of the air and smoke. As not much research on these formulation are carried out there remains a lot of scope for research in these areas.

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