

Proceedings of
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**“Eco-Textiles: A Step towards Sustainability”
(NCETS 2015)**

Editors
Dr. K. Sangeetha
Ms. K. Amutha
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AYURVASTRA REVIVAL OF HOLISTIC SCIENCE

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Abstract: *In the present day world, hygiene is headline news and consumers are very conscious of textiles that are hygienic. Good hygiene is an aid to health, comfort and social interactions. It directly aids in disease prevention or disease isolation. For that revive Ayurveda, the branch of Ayurveda medical science in clothing which is completely free of synthetic chemicals, toxic irritants and thus avoids global warming. The Ayurvedic herbs have various medicinal properties and when they are dyed with the fabric, it gives a cooling and efficient effect. In contact with clothing, the skin absorbs medicinal qualities of herbs. Dyeing of textiles with medicinal plants is a promising area which needs to be explored scientifically and systematically for producing diversified value products. Cloth infused with herbs of traditional Indian medicine is becoming increasingly popular as the country's stressed urban workers see cures for conditions such as insomnia and eczema.*

Globally, as many countries have been enforcing a ban on textiles that have been coloured using chemical dyes, at the same time, textile dyed using natural vegetable dyes, especially medicinal plants, have been commanding a huge market due to their obvious advantages. The herbal textiles like yoga wear, inner wear, face towels and hand towels are available in market and have huge demand, but apart from that the technology steps forward to produce herbal finish in sports textile and that is a promising area for better environmental wellness.

Rising interest of the consumers around the globe in sustainable development, environment friendly products and natural healing is creating an increased demand for safe and healthy organic clothes. Encouraged by naturalists and allergy-sufferers in its infancy, the organic textile market is expanding as consumers demand products that are not only earth-friendly but human-friendly as well. Because the process to manufacture textiles requires treatments that can leave chemical residue on the finished product, just using organic fibres is not enough. The entire production process must be considered to concentrate on waste water management and by reducing pollution caused by textile dyeing using chemicals.

Introduction

Worldwide textile producers face various challenges. About one half of the world's waste water problems are linked to production of textile goods, and many of the chemicals used to dye and finish fabrics are known to harm human health. Therefore, product design should begin with the selection of healthful ingredients. Customers of 21st century are also safety and health conscious. Thus it is well accepted that they will not mind to pay extra for this health and safety. It is definitely a value addition that protects the interest of a consumer.

Ayurveda, the ancient and proven natural and holistic healing system of medicine, practiced in India for more than 5000 years, is now a globally accepted science because it is the world's most eco-friendly system of medicine, since it does not use any material unfriendly to the ecosystem. Ayurvedic clothing is made from organic fabric that has been permeated with special herbs and oils. The herbs are selected according to Ayurveda, with the infused cloth known as ayurveda.

Ayurveda believes in restoring the balance within the body's system and strengthen the immune system. The various herbs used have well proven antimicrobial and other medicinal properties. As the waste generated during the process also can be efficiently used as fertilizers. Ayurveda is best for treatment of skin conditions as the healing effect of herbs can be infused into layer of skin and does not cause any side effects as like allopathic ointments and powders.

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There are various types of skin diseases all these are commonly found by fungi and bacteria. So the root cause of any skin disease could be with microbes. Therefore the clothes produced with antimicrobial finish are better for treatment of skin diseases. The herbs selected for dyeing must contain antimicrobial agents that resist further growth of fungi and bacteria and also treats the condition. This can be applied for treatment of skin conditions like ringworms, foot fungus, psoriasis and eczema.

Herbs for Skin Infections

In this study, the herbs that contain flavonoids, Saponins and Antifungal properties are suggested for common skin infections.

Name of the herb	Part used	contents	Medicinal value	Treatment
Aloe Vera		Acemannan and polyethylene oxide	Anti-fungal and Anti-microbial and Anti-Inflammatory properties.	Skin infections, burns
Neem	Leaves and barks	Meliceae	Insect control antiseptic and antimicrobial properties.	Pesticide and fungal disease.
Marigold	flower	Saponins, Mucins and Flavanoids	Antibiotic and antimicrobial properties.	Skin infections, fungal disease and blood purification.
Myrrh	Gum resin from stem	Polysaccharides and Triterpene acids.	Antiseptic and Anti-Inflammatory properties.	WBC production, skin infections, mouth ulcer, glandular fever and brucellosis.
Copaiba Balsam	Resin from the stem	Terpenic acids	Antimicrobial properties.	Herpes, syphilis, eczema and psoriasis.
Giloe	stem	Columbin, Tinoporaside, berberine.	Antipyretic and Antifungal properties.	Jaundice, skin disease and Anaemia.

Fabric Selection

Herbal dyeing is applied to textile articles like: Raw Fibre, Woven fabric, Knitted fabric, Nonwoven fabric and Stitched garments. Since all cotton material are cellulose based; wood, paper should be regarded as textile article. Textile article could be a blend of Plant Fibre and Animal Fibre. Fibre selection can be made with cotton and silk as it absorbs perspiration quickly.

Preparation of Concoction

The herbs were taken separately dried in shade and powdered. The dye was extracted by soaking herbs in water and boiled for 2 hours in 100°C to get a thick viscous solution. The solution was strained in cloth and kept overnight. The strained solution is used for dyeing.

Dyeing Method

Usually ayurveda fabrics are produced by process as follows

Method	Materials used
Desizing	Seasalt
Bleaching	Cow urine, milk and honey
Gumming	Aloevera gel powder and camphor
Dyeing	Herbs
Mordanting	Pomegranate rind
Washing	Soapnut

These process are to be carefully handled and the temperature the amount of dryness and humidity required for herbs and boiling condition must be properly done. Usually dyeing is done with 55-65 degree Celsius. The cloth was dried under shade for several days.

- * Herbal dyes cause no disposal problem as they are biodegradable. They are obtained from renewable sources and the shades obtained are soft lustrous and soothing to human eye. They are non-carcinogenic and above all it is environmental safer method of dyeing

textiles, practically no or mild reactions are involved in their preparation. They have pharmacological effects and possible health benefits. It is possible to obtain full range of colours using various mordant.

- * Decoctions are usually the method of choice when working with tougher and more fibrous plants; barks and roots. Instead of just steeping it in hot water, the plant material is boiled for a longer period of time to soften the harder woody material and release its active constituents.
- * The mordant are used for fixation of the dyestuff, increasing the fastness properties or variation in the colour appearance.
- * Basically three different types of mordanting are followed in herbal mordanting; pre, after and meta mordanting. The process varies in the time of mordant addition. While pre- and- post mordanting require an additional treatment step in a separate bath, the simple addition of a concentrated salt solution directly to the dye bath is used in the so called meta-mordanting process.

Usage and Benefits

Herbal textile is finished entirely with herbal extractions, without using any sort of chemicals. These herbs are applied directly to the fabric with the help of natural ingredients, so that the medicinal value of the herbs can be kept intact. No chemical process is adopted while finishing process. Herbal treated cloth has the ability to protect us from various skin diseases, provides relief from viral infected disease and mental depression, since the herbal finished clothes or garments come in prolonged contact with the human body. The medical properties of herbs are known to cause no damage to the human body.

Considering the detrimental effects associated with pathogenic bacteria and fungi. The herbal textiles find extensive use in innerwear, yoga wear, sleep wear and surgical textiles and clinical wear. Preparing herbal cloths such as nightwear, fashion wear, Bandages, mask, sportswear, sheeting, undergarments, shirts, helps in curing a number of diseases and shield the human skin by adding medicinal value of herbs to cloths. Some of the apparels products available in market are robe, apron, eye mask, fitted sheet, hand mitt, bath mitt, shower towel, hand towel and face towel.

- * Herbal textiles do not contain any sort of chemicals.
- * It balances ecology cycle thus only 6% surface water used globally
- * The textiles are dyed with herbs will have highly therapeutic value
- * Herbal textiles can fight diseases like hypertension, diabetes, heart ailments, skin infections
- * Herbal textiles are not only eco friendly but also they give away certain residues that can be further used for making other environmental products
- * The solid as well as liquid wastes from herbal dyeing process can be recycled to be used as manure in fields

Application of Herbal Textiles

Now Ayurvastra is climbing the popularity graph as it reaches beyond the geographical boundaries. With people becoming increasingly health conscious, the Ayurvastra fabric that is dyed using various Ayurvedic herbs is honoured as the royal medicinal dress. Thus Ayurvedic clothing is the new way to live a natural and healthy life. The Ayurvedic textile products were hand loomed, the production is slower at that same time economically it is time and manpower consuming process.

Thus for the present era, modern world and with faster technologies, Ayurvedic knitted textile products are becoming popular. A wide variety of products including socks and such can be produced. The various types of regular wear are also available in herbal textiles. In future, herbal textiles will make possible for sports wear with modern technology. Like it can become stronger dye sustainable fabrics through microencapsulation and nano technology that could reduce skin irritations and help keep body away from microbial diseases. These technologies will lead us to natural way of living and thus reduces global warming and are eco-safe. These types of textile products can be possible for herbal finish.

socks
Shoe liners
Head mask
gloves
Sweat pads
Face mask
Sports wear pads

Conclusion

The present work shows that, herbal dyeing is advisable for knitted cotton. The herbal dyed cloth comes in direct touch with human skin, protect human skin from fungal infection by transmitting medicinal value of the herbs to skin and into body by transpiration. There is need for proper knowledge, identification and assessment of a lot of scope to use herbs to cure disease through Ayurvedic dyeing, used in garments that come in contact with skin.

Hence dyeing the textile article with herbs, the medicinal value of herbs in cloths will remain because dyeing is done without chemicals. The waste of dyeing process containing an herbal dye discharged in the environment does not cause any type of pollution in environment, but on the contrary may be useful as fertilizer and enhance the value of non fertile land. It is having antiallergic, antiseptic and antimicrobial functioned. Herbal wear is advisable to all age of people, children, handicapped and pregnant woman. Therefore the research has laid a strong foundation to enhance Ayurvedic dyeing, which has cast an eye on global market, that people will not mind to pay extra for this health safety products, medicinal herbs have been commanding huge demand in market.

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