

A Review on Ayurveda: Extraction Methods and Medicinal Properties

Dr. Sandhya S. Deole ⁽¹⁾, Swarnamala K. Nagdeve ⁽²⁾

⁽¹⁾ Assistant professor, Department of Home Economics, Vasantao Naik Government Institute of Arts & Social Science, Nagpur, Maharashtra, India

⁽²⁾ Researcher, Department of Textile & Clothing RTM Nagpur University Nagpur, Maharashtra, India

ABSTRACT

Ayurveda is the ancient medicine in India to treat many diseases by using herbs. Ayurveda must be the source of the idea for Ayurveda. The study on medicinal plants started with extraction procedures that play a critical role to the extraction outcomes. A wide range of technologies with different methods of extraction is available nowadays. Ayurveda it is noticed that different results are seen due to the use of different Extraction methods as well as different mordant. It is evident that the majority of researchers have favoured traditional dye extraction techniques. The evaluation and choice of pre-extraction preparation and extraction procedures, however, depends on the goals of the study as well as the target chemicals, samples, and preparation methods. Consequently, Ayurvedic fabrics point us in the direction of a healthier, more natural way of living. However, the study objectives, samples and target compounds all play a role in the evaluation and selection of pre-extraction preparation and extraction methods.

Keywords – Ayurveda, Ayurveda, Extraction, Medicinal Plants, Traditional Dye

INTRODUCTION

Ayurveda must be the source of the idea for Ayurveda. Ayurveda and fabric are the two primary items mentioned in the term Ayurveda. Since humans first arrived on the planet, nature has been predominantly utilised for development. Nature provided the means for man to satisfy his fundamental requirements for food, clothes and shelter. Plants were used by man to master the craft of weaving fabric and he also used this natural plant to create the craft of dying cloth. Ailments can

be treated with herbal medication and some illnesses in the body can be avoided by wearing clothing coloured with therapeutic herbs.

The founder of Ayurveda, Archi Modi, states: "We were all reminded of the value of balance in life by the pandemic." made us realize that pausing to consider what has transpired thus far is necessary. Sustainability has always been important to Indian culture.

According to Archi, the Indian textile industry is in a good position to accelerate the adoption of Ayurveda. "India is in a better position to leverage this sustainable product due to the ancient knowledge of Ayurveda and the availability of skilled craftsmen possessing the knowledge of the complex technique," the speaker claims." [13]

Ayurvedic fabrics are not only comfortable against the skin, but they also let the health-promoting elements of herbs permeate the body's pores. How to use this fabric is based on the touch concept. Because ayurveda is so close to the skin, it increases metabolism, which aids in the body's detoxification. The ideal times to wear ayurvedic clothing are when the body is healing and regaining equilibrium, or when it is naturally at rest, like during sleep or meditation. These days, with the news changing quickly, people becoming more conscious of the ozone hole and new scientific research revealing the impending problems with global warming. [5]

Since the fabric treated with herbs has the potential to cure as well as prevent diseases, it is now used to make sarees, dresses and other kinds of clothing. Expert in Ayurveda Hemant Sagar says that healing textiles are nourishing and enhance the wearer's body, mind and soul. Since our products uplift both the individual and the environment as a whole, we are very proud of them. Ensuring the health of the wearer is the ultimate goal, starting from the cotton seed and ending with the finished product. [14]

Natural fibers, such as cotton, are good for the skin; the comfort and softness of the skin are enhanced when these fibers are coloured with natural medicinal herbs. The purpose of this study is to examine different natural dye sources, unique techniques for extracting natural dyes, unique therapeutic qualities of the fabric and successful applications in treating a range of ailments. [7]

LITERATURE REVIEW

M Vasundhara, B Radhika, BS Thara, Priyanka R and Ashwini Jayaram (2016) Ayurveda was created by a researcher using the conventional extraction process from kokum. The study claims

that the conventional extraction procedure yields the greatest results for colouring in ayurveda. Anthocyanin is known for his significant therapeutic potential. Anthocyanins may be found in abundance in *Garcinia indica*, often known as kokum. The goal of the current study was to extract and estimate the color-producing pigments found in kokum rind in order to determine whether they may be used as an ayurvedic dye in Ayurveda. anthocyanin source of medicinal property it can be in medicinal and pharmaceutical products. [6,9]

H. D. Sinnur, Ashis Kumar Samanta, D. K. Verma, Runali Kaware (2017) Ayurveda was created by a next researcher using pomegranate rind. The cotton khadi fabric was examined for its UV protection factor and matching outcomes after being coloured with pomegranate rind at varied dye (extract of anar peel) concentrations. It has been noted that the UPF values obtained following mordanting with an overall 15% application of potash alum plus harda (50:50) and dyeing with pomegranate rind extract showed some positive results, resulting in the pomegranate rind coloured cloth demonstrating UV protection. It is easily seen that there are two distinct peaks at the UV region that indicate how well the dye protects textile materials from UV light. [4]

Javed Sheikh, Nagender Singh & Dipak Pinjari (2019) The Ayurveda was created by researcher using the standard extraction process from *Kigelia pinnata* flowers. All of the applied mordants produced a wide range of hues with various tones. The colour values that were produced in each dye and mordant combination were adequate. Along with significant variations in their K/S values, the various mordants also affected brightness index and L values. Due to their capacity to create stable complexes with the dye constituents, copper and ferrous sulphates exhibit the highest K/S values. The distinctive combination of *Kigelia Africana* flower colourant and lithe mordants utilised in this study are the representatives of numerous mordants available for natural dyeing and KAFC may be used with other mordants to discover new hues on linen. A shift in shade is visible in then after pre-mordanting with metal ions. The UV resistance of coloured textiles is good to exceptional since they have reduced UV transmission. It was found that the UV transmittance spectra were affected differently by several mordants. It may be said that materials coloured with KAFC have the ability to block UV light. Additionally, the finished item made from such textiles may effectively shield the skin of the wearer from UV rays.[11]

While most researchers have clearly favoured conventional dye extraction methods, a review article published in the International Ayurvedic Medical Journal showed how simple and inexpensive the Soxhlet method is. The displacement of transfer equilibrium by repeatedly bringing fresh solvent into contact with the solid matrix, the ability to maintain a relatively high extraction temperature with

heat from the distillation flask and the elimination of the need to filter the solution after leaching are some of the benefits of conventional Soxhlet extraction over other extraction techniques. One of the best new developments in dye extraction techniques is Soxhlet extraction, which can be used for colorant identification.

OBJECTIVE OF THE STUDY

- 1) To study several sources of medicinal dyes.
- 2) To study the medicinal benefits and suitable extraction methods of ayurveda.
- 3) To study the various natural dyes extraction techniques.

METHODOLOGY

1. In this study we are using the Descriptive type of Research design.
2. Data collection – For this study secondary data of data collection is used.

Secondary data - the data was collected from various sources by someone other than the actual user. It means that the information is already available and someone analyses it. The secondary data includes magazines, newspapers, books, journals, etc. It may be either published data or unpublished data the result had been concluded on secondary data base survey.

METHODS OF DYE EXTRACTION

It has been observed that some techniques are mostly used to extract dye from natural sources. For research purposes and little application, extraction is often done by drying, grinding and combining with water, acetic acid, NaOH, or ethanol solution. Therefore, it is crucial to use extraction techniques that are economical and environmentally safe without compromising the extraction process or degrading the biological material. The many natural dye extraction techniques are listed below. Extraction is the process of separating the parts of a plant that are medicinally effective utilising certain solvents and accepted practises. All extraction procedures have the goal of separating the plant's soluble metabolites from its insoluble cellular marc (residue). Some of the

originally produced extracts may be suitable for use as tinctures and fluid extracts, while others require further processing. Below, a few of the most popular extraction techniques are covered. [1]

Aqueous extraction - It is among the simplest and earliest techniques for removing colour from natural dye sources. Despite the heat needed for the boiling process, it is nevertheless popular because of its environmentally benign method. Here, the optimal amount of water and naturally occurring pigment-producing sources are cooked for an extended period of time probably an hour. To raise the pH of the extraction water, sodium carbonate is added if necessary for hard woody materials. Alkaline extraction is a frequent name for this process. The extract is pressed when it has cooled and the pure extract is then filtered for further use. [3]

Soxhlet extraction or hot continuous extraction - When introducing a solvent to hard woody raw materials in a steam-heated extractor known as a Soxhlet equipment, it is essential. Many solvents, such as acetone, chloroform, ether, n-hexane, alcohol, etc., are used for extraction. Although concentrated solvent use is required for an environmentally acceptable method, the procedure usually takes four hours. [7]

Ultrasonic extraction - This technique utilises ultrasonic energy, which operates at lower temperatures and speeds. As a result, both the extraction of dye from natural dye sources and the colouring of textiles produces higher-quality products.

Supercritical fluid extraction - Supercritical Fluid Extraction Techniques were created in order to eliminate issues related to the use of solvents and other chemicals, along with the high energy necessary to boil the raw materials. Here, a solvent like carbon dioxide which is safe, secure, affordable, non-flammable, nontoxic and environmentally friendly is employed. However, the method is not widely accessible to regional artisans using natural dyes. Therefore, choosing necessary and safer extraction techniques became a crucial stage in the use of natural pigments. As a result, the study used the conventional aqueous procedures.[9]

RESULT AND DISCUSSION

To create the many colours of vastra apparel, 200 plants are utilised. Each colour is made from a mixture of precisely mixed and meticulously prepared medicinal herbs, plants, flowers, roots and barks, such as turmeric in clothes, which often comprises one or more prominent plants or herbs in addition to 40 or more others. These plants provide coloured cloth or yarn a miraculous healing

effect. By decreasing the possibility of contamination by biological toxins and infectious pathogens, the use of herbal medicinal items helps to prevent the spread of diseases to other patients.

1. Few Herbs and their medicinal properties [1]

Herbs Used	Medicinal Quality of the Fabric
Aloe vera	Burns and skin infections.
Haritaki	Anti - septic, anti inflammatory.
Neem	Controls skin diseases.
Castor (Oil)	Maintains temperature of the skin.
Henna	Skin irritations and skin allergies.
Onion	Skin diseases.
Indian Madder	Cures various skin diseases.
Sandalwood	Cools the skin, curing skin itching.
Golden Champa (Flower)	a range of skin conditions, starting with allergic reactions.

Table No 1: Herbs and their Medicinal Quality

Observing Ayurveda it is noticed that different results are seen due to the use of different Extraction methods as well as different mordent.

2. Comparison of benefits and weakness of various extraction methods

Extraction Method	Benefits	Weaknesses
Conventional Aqueous Extraction	1) Extremely basic approach. 2) Flexibility in the amount of material that is taken out. 3) Because of the low procedure temperature, there is no deterioration upon extraction.	1) In general, process efficiency is low 2) A laborious and slow procedure 3) Makes extensive use of solvent
Reflux (soxhlet) Extraction	1) Easy setup. 2) Because simultaneous filtering occurs during extraction, no additional filtration is required. 3) The capacity to extract solvents.	1) An extremely sluggish procedure. 2) A large amount of solvent is needed. 3) Degradation due to heat over extended periods of time. 4) The use of hazardous solvents poses risks to human

		health and the environment.
Ultrasonic extraction	1) Quick procedure 2) Extremely effective technique 3) Reducing temperature to save energy	1) Limited extraction volume and yield.
Enzyme assisted Extraction	1) Eco-friendliness in process. 2) Far greater yield than with conventional techniques. 3) Very helpful in situations requiring selective chemical extraction.	1) The activity of enzymes is highly sensitive to changes in pH, temperature, metal ions, etc.
Microwave assisted Extraction	1) Easy to use approach. 2) A cleaner method Reduce the duration of extraction. 3) Little solvent volume needed.	1) The microwave setup is very expensive. 2) Limited amount of extraction.

Table No: 2 Comparison of benefits and weakness of various extraction methods

Solvent kinds and strength are among those optimization studies' most important parameters for nearly all methods. However, it has been found that the solvent sample ratio has no statistically significant impact, indicating that solvents in excess large volumes can be avoided. For the plants, each optimum technique is special. All the influencing parameters (temperature, solvents, agitation speed, etc.) may be able to improve extraction, but improper application may result in compound degradation. In order to choose appropriate approaches, it may be useful to take into account those that have the fewest influencing aspects. However, sophisticated extraction technologies like ASE should be taken into consideration if purity is an issue.

CONCLUSION

Health, sustainability and environmentally friendly products are all becoming increasingly popular. Natural dyes are non-toxic, non-allergic and cause less pollution than synthetic dyes. It is significant to ayurveda. In this research, many natural dye extraction techniques and the significance of ayurveda have been explored. All this observation leads us to the conclusion that both conventional and cutting-edge techniques have been employed for natural dyeing. In the study of medicinal plants, all extraction phases, including pre-extraction and extraction are crucial. The efficiency and phytochemical components of the final extractions were impacted by sample preparation techniques including grinding and drying, which ultimately had an impact on the final extracts. No one

extraction technique is the best technique and each extraction process is specific to the plants it is used on. The choice of appropriate methods can be influenced by previously refined methods. It is concluded that the evaluation and choice of pre-extraction preparation and extraction procedures, however, depends on the goals of the study as well as the target chemicals, samples and preparation methods.

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