

A Review on Ayurvedic Textiles: Solving the Problems

Ms.Pallavi korepu¹, Ms. Nikhila Rane²

¹Msc Student of Fashion Design and Textile, SNDT Women's University, Mumbai, India.

²Assistant Professor of PG Department of Textile Science And Apparel Design, SNDT Women's University, Mumbai, India

1. Introduction

Traditionally, textiles were used to cover and protect the human body, but as technology has advanced, their use has broadened to include other practical qualities (Gupta et al., 2013). Functional textiles are now more than just protective materials because to advancement in textile technology, which can offer advantages like antibacterial activity, enhanced comfort, and therapeutic effects (Gupta et al., 2013; Jyothirmain & Panda, 2016). Concerns about the environment and human health have also been raised by the growing use of synthetic textiles. Allergies, skin irritation, and other dermatological issues have been linked to synthetic textiles and chemical-based finishes. Because hazardous chemicals are released during the manufacture and dyeing processes, these products also contribute to environmental pollution (Kulkarni, 2024; Yasotha, 2019). The need for safer and more sustainable textile substitute is becoming more widely recognized as a result of these problems.

Eco-friendly, biodegradable, and health-promoting fabrics are therefore in greater demand. Because they are less damaging to the environment and human health, natural fibers and plant-based dyeing techniques are becoming more and more popular (prajapati & Patel, 2025; Nateri & Nateri, 2025). This change has promoted scholars and designers to investigate conventional textile methods that combine sustainability and health advantages.

Ayurvedic textiles, sometimes referred to as ayurvastra, are textiles that have been treated with natural plant extract and herbs impart therapeutic qualities to the body through skin contact (Minocheherhomji & Solanki, 2015; Rangari et al., 2012). Ayurveda, which emphasizes natural healing and preserving bodily equilibrium, is the foundation of this idea (staheli, 2023). Because they are composed of natural fibers and biodegradable plant-based dyes, these textiles promote both mental and physical well-being and are environmentally beneficial (Das, 2024; Oka Living, 2025). The purpose of this review paper is to examine ayurvedic textiles

concepts, materials, processing techniques, uses, difficulties , and potential to address environmental and health issues.

2. History and evolution of Ayurvedic Textiles

Herbal - treated textiles have been utilized in India since ancient times, when natural fibers like cotton and hemp were employed for both clothing and medicinal uses. These materials were prized for their strength, comfort and medicinal uses .These materials were prized for their strength, comfort and therapeutic qualities, and they were intimately associated with ayurvedic practices that prioritized preservation in health and well-being (singh& choudhary,2025).In ancient India, Ayurvedic textiles served a number of purposes. Warriors wore herbal- treated textiles under their armor to aid in wound healing and protection, and newborns were wrapped in them to strengthen immunity and prevent infections (Rangari et al.,2012. Das,2024).This demonstrates the close connections that traditional cultures have between textiles and health.

In these textiles, natural colors were crucial. In addition to being utilized for coloring, herbs like neem, turmeric and indigo were also employed for their antibacterial and anti- inflammatory qualities. These natural dyeing techniques were safe for the environment and for people (Minochecherhomji & Solanki,2015; Yasoth, 2019). But as Industrialization progressed, synthetic chemicals took the role of natural dyes, causing pollution and health problems. Ayurvedic fabrics have had a comeback in recent years as people's awareness of sustainability and health had grown. In order to create useful and environmentally friendly textiles, modern research today blends old knowledge with contemporary technology(Kulkarni,2024, Das,2024,Tiwari,2024).

3. Concept and Scientific principle of Ayurvedic Textiles.

The Sanskrit terms "Ayur", which means life or health, and "Vastra," which means clothes, are the sources of Ayurveda textiles, also called ayurveda. Natural textiles like cotton, silk and wool are treated with herbal extracts and therapeutic plant based compositions to create these textiles. The goal is to transform everyday apparel into therapeutic and useful textiles that can promote human health (Minochecherhomil&Solanki2015, Rangari et al., 2012, Tiwari, 2024).

3.1 Scientific Principle of Trans dermal Absorption Mechanism

Trans dermal absorption , or the movement of materials from the fabric into the body through the skin, is the fundamental scientific ideas underlying Ayurvedic textiles. Because human skin is semi- permeable, some tiny molecules can get through it.

3.2 When an individual dons Ayurvedic clothing:

- The activity of herbal substances is increased by body heat.

- Sweat, or moisture, aids in the herbal compounds dissolution.
- The layers of skin are gradually penetrated by these dissolved substances.
- The textiles functions as a slow - release therapeutic system because of the ongoing interaction between the skin and the fabric, which permits the progressive absorption of medicinal substances(Gupta et al.,1023, Stahelu,2023)

3.3 Body Heat and Moisture's Function.

Ayurvedic fabric are actives in larger part by body heat and moisture, facilitates the fabric's release of active chemicals. These substances are transported into the epidermis is moisture (sweat and humidity). Extended wear duration boosts efficacy For this reason, ayurvedic fabrics are typically utilized in Sleepwear,Bandages, Clothes for meditation ad Sheets for beds due to the fact that these applications gurantee constant skin contact(Ayursatwa n.d: Halepule Ayurveda& Yoga, n.d.).

3.4 Herbal Extracts' (Kashays) Function.

Herbal remedies known as “Kashayas,” which are made from medicinal plants according to certain medical requirements, are used to treat ayurvedic diseases.

Several herbs that are frequently used:

Neem is antimicrobial, Anti inflammatory properties to turmeric, Immunity boosting Tulsi, Sandalwood is calming and cooling and herbal compounds, which are then transported to the skin during use (Mincheherhomij & Solanki,2015: Yasotha, 2019).

3.5 Bio active Substances and their Functions

Bio active substances found in medicinal plants are the source of ayurvedic textiles potency.

1. Phenols have antioxidant properties

prevent free radical damage to your skin.aid in the healing of the skin.

2. Flavonoids

Posses anti inflammatory qualities Diminish edema, redness and irritation Boost the health of your skin

3. Alkaloids

Posses medicinal and antibacterial properties aid in the battle against germs and illnesses.

Ayurvedic textiles can be used for medicinal and health related purposes because of these chemicals(Rani& Singh,2022: Prajapati & Patel,2025: Nateri & Nateri, 2025).

3.6 Functional Properties of Ayurvedic Textiles

Due to these bio active compounds, Ayurvedic textiles show several improtant properties:

Antimicrobial - Kills bacteria and fungi, Anti Inflammatory _ reduces pain and swelling, Antioxidant - Protects skin from damage , Skin friendly - Free of dangerous substances and Eco- friendly - non- toxic and biodegradable.

These characteristics make them appropriate for every wear and health-care applications (Yasotha,2019:Padmalatha et al.,2025)

3.7 Ayurvedic Body Balance Theory

Three energies govern the human body, according to Ayurveda:

Pitta, Kapha and vata. The body remains healthy when these are in balance. Ayurvedic fabrics support the preservation of this balance by having warming or chilling effects encouraging the body's natural healing processes. Stress reduction and comfort enhancement. As a result, these textiles promote mental and emotional health in addition to treating physical issues(Staheli,2023: Miho, n.d).

4. Materials and Herbs Used in ayurvedic Textiles

Natural fiber and medicinal herbs are the primary materials used in Ayurvedic textiles because they are safe, environmentally friendly, and appropriate for therapeutic uses. The effectiveness of Ayurvedic textiles is significantly influenced by the material chosen

4.1 The use of natural Fibers

The majority of ayurvedic textiles are composed of natural fibers like:

Cotton, jute and wool Bamboo and silk

Reasons for using these fibers:

These fibers are favored due to: High absorbency: They may absorb herbal extracts with ease and hold onto them for a longer period of time. Breathability they are comfortable for skin contact since they allow air to circulate.

Skin- friendly - Don't irritate or trigger allergies, Biodegradable - Sustainable and safe for the environment.+

Improved herb interaction - Facilitates the efficient delivery of therapeutic qualities to the skin.

Ayurvedic textiles function better overall because natural fibers serve as a carrier medium for medicinal ingredients(Minocheherhomji & Solanki, 2015: Tiwari , 2024)

4.2 Use of medicinal Herbs

Ayurvedic textile production uses a variety of medicinal herbs. These plants were chosen for their therapeutic, defensive and practical qualities.

Common herbs and how they work. Neem's contain powerful antibacterial and antifungal. Prevents skin diseases. Turmeric contains antibacterial and anti-inflammatory that reduces skin irritation and swelling.

Tulsi, often known as holy basil, has antibacterial properties, increases immunity, and protects against bacteria. Sandalwood provides a calming, cooling effect and relieves heat and tension. Aloe vera cleans and moisturizes the skin, promoting healing and hydration. Bioactive chemicals found in these herbs offer practical advantages such as antibacterial and anti-inflammatory properties (Yasoof, 2019; Rani & Singh, 2022).

4.3 Use of Natural dyes

Natural dyes derived from plants are used in Ayurvedic fabric rather than artificial ones.

Example: Turmeric and Indigo, Madder, Dyes made from neem, Natural dyes are important. Give to fabric also. Add therapeutic qualities. Functions as antimicrobial agents are safe and environmentally beneficial. Down on pollutants in the environment. Natural dyes enhance fabric's usefulness and environmental worth, in contrast to chemical dyes (Oka et al., 2025; Yasoof, 2019).

5. Processing method of Ayurvedic textiles

Ayurvedic textiles are processed by applying herbal extracts to natural textiles to provide the therapeutic and practical qualities. Both contemporary textile finishing techniques and conventional Ayurvedic procedures are used in this process. (Tiwari, 2024; Rangari et al., 2012)

5.1 Making Herbal Extracts (Kashayam)

Making Kashayam, or herbal remedies, is the first stage. Sandalwood, Tulsi, turmeric, neem, other intended therapeutic use. To extract their active ingredients, these herbs are cleaned, dried, and cooked in water. The resultant liquid is used to treat textiles and contains beneficial substances (Minocheherhomji & Solanki, 2015; AyurSatwa, n.d.).

5.2 Dyeing Process

The fabric is submerged in the herbal dye bath once the Kashayam has been prepared. Cotton and silk are examples of natural textiles that absorb the herbal solutions' color and therapeutic qualities. This procedure gives the textile both functional advantages and aesthetic appeal (Rangari et al., 2012; Yasoof, 2019).

5.3 The pad-dry-cure method of Finishing

The pad-dry-cure method is used for Ayurvedic finishing in contemporary textile manufacturing. Using this technique, the fabric is first padded with herbal extract,

dried to eliminate any remaining moisture, and then heated to cure the herbal compounds onto the fabric. This procedure increases the finishes resilience to washing and durability (Padmalatha et al., 2025; Tiwati et al., 2025)

5.4. Use of Enzymes

Enzymes like laccase are being used in textile processing to improve the efficacy of herbal finishes. Enzymes enhance durability and did in the better binding of herbal ingredients to the cloth. Sustainable textile processing is supported by this environmentally beneficial technique (padmalatha et al., 2025; Nateri & Nateri, 2025)

5.5 Drying and Curing

The fabric is dried and properly cured after dyeing and finishing. This stage improves the textiles long term performance and guarantees the fixation of herbal chemicals (Tiwari, 2024).

5.6. Traditional vs Modern Processing

Traditional Method:

In traditional ayurvedic textile processing, clothes are soaked and boiled in herbal extract without the use of chemicals. This approach is time consuming and less durable despite being environmentally beneficial (Rangari et al., 2012)

Modern method

In order to increase durability, homogeneity and appropriateness for large-scale production, modern processes employ sophisticated procedure including pad-dry-cure and enzyme-based finishing (Tiwari et al., 2025; Padmalatha et al., 2025).

6. Health benefits and Medical Applications of Ayurvedic Textiles

Through constant skin contact, Ayurvedic textiles (ayurvedastra) are intended to offer therapeutic effects. Bioactive substances found in the fabrics treated with herbs aid in enhancing both emotional and physical well-being (Minochecherhomji & Solanki, 2015; Staheli, 2023).

6.1. Skin Issues

Ayurvedic textiles are quite successful in treating a range of skin conditions, including Psoriasis and Eczema, Infections of the skin. How they operate Neem and turmeric are two examples of herbal extracts with antibacterial qualities that help eradicate bacteria and stop illnesses. Anti-inflammatory substances lessen itching, redness, and irritation (Rani & Singh, 2022; Yasotha 2019).

6.2. Chronic Diseases

Additionally, Ayurvedic textiles aid in the treatment of chronic illnesses such as Diabetes, Asthma and Arthritis, Elevated blood pressure. How they operate herbal

Substances aid in enhancing blood circulation , which is critical for the body's general operation. Anti inflammatory qualities lessen swelling and pain in the joints, particularly in arthritis. Certain Herbs have a soothing effect and aid in the regulation of bodily processes.(Minocheherhomji & Solanki,2015;Staheli,2023).

6.3.Mental Health benefits

Additionally,Ayurvedic textiles support mental Health in the following ways; Reduction of stress. Higher quality sleep. How they operate herbs with relaxing and cooling properties include tulsi and sandalwood.Constant exposure promotes mental and physical relaxation.encourages comfort when relaxing and meditating (Ayursatwa n.d.; Staheli,2023).

6.4.Mechanism of Action (Scientific explanation)

The inclusion of bio active Substances in Ayurvedic textiles is the basis for their health benefits, Including antimicrobial and antioxidant properties of phenol, Flavonoid Protective and anti-inflammatory, Alkaloids Medical and restorative properties and Overall operations antimicrobial action infection prevention and anti inflammatory effects lessens discomfort and oedema. Healing is supported by improved blood circulation. The relaxation impact enhances mental – being.(Yasotha,2019: Prajapti & Patel,2025).

7.Pharmaceutical Relevance of Ayurvedic Textiles

Because they function as a medicine delivery method through the skin, Ayurvedic textiles are particularly important in the pharmaceutical and medical industries.These textiles are comparable to Trans dermal treatment systems, which administer medications to the body without the need for injections to oral ingestion(Gupta et al., 2023; Staheli,2023).

7.1.Link with Drug Delivery system

Drug delivery systems are employed in contemporary pharmaceutical science to administer medications into the body in a regulated manner.The idea behind ayurvedic fabrics is similar. Bio active substances are present in fabrics treated with herbs.When the fabric touches the skin, These substances are gradually released . The medication is absorbed through the skin and enters the body .because of this , ayurvedic textiles are can provide drugs continuously and non-invasively (Minocheherhomji & Solanki ,2015)

7.2. Transdermal effect(Like medicated patches)

Ayurvedic textiles function similarly to medical transdermal patches.

Herbal chemical are released with the aid of body heat and moisture.these substance pier the layer of skin. Deliver along – lasting and gradual therapeutic impact This approach avoids. Oral medication side effects ad injection- related pain (Prajapati & Patel.2025;Gupta et al., 2023).

7.3.The use of herbal Compounds in medicine

Ayurvedic fabric made from herbs include therapeutic substances like Alkaloids, Flavonoid, and phenol.

Their roles are antimicrobial agents destroy microorganisms and stop infections. Reduce pain and swelling with anti inflammatory drugs. Antioxidants shield body cells and skin. Because of these qualities ,the cloth it self functions as a medicinal substances (Yasotha,2019; Rani & Singh,202).

7.4. Medical and pharmaceutical Applications

Ayurvedic textiles are utilized in a number of medical items,Including Bandages with medication used to aid in the healing of wounds, Prevent infections , and accelerate healing (Gupta et al.2013 ; rani & Singh,2022).Gowns for hospitals Reduce the risk of hospital acquired illnesses and offer antimicrobial protection (Staheli,2023: Yasoth, 2019).Textiles that cure wounds Dressing treated with herbs promotes tissue healing, uphold hygiene and lessen inflammation (Roshima & Periyasamy,2025:Prajapati & Patel,2025). Antimicrobial bed linens Utilized in hospitals to enhance patient safety, Hygiene, and prevent the spread of pathogens (Yasoth,2019: Nateri & Nateri,2025).

7.5 Research Evidence

Scientific Studies support the effectiveness of Ayurvedic textile Treatment. A Study by Padmalatha, et al. (2025) reported that herbal – treated textiles showed up to 99% bacterial reduction, proving their strong antimicrobial efficiency and suitability for medical applications(Nateri & Nateri ,2025).

8.Applications of Ayurvedic textiles

The Eco- friendliness and health benefits of ayurvedic fabrics have led to their widespread adoption.These fabric are used in the wellness, Health care, and daily living sectors.

1.Everyday use

Ayurvedic fabrics are frequently utilized in regular apparel, including Typical attire Sleepwear and Yoga wear because these clothes are in constant touch with the skin, the herbal properties can offer health benefits, comfort and relaxation (Minocheherhonji & Solanki 2015; Staheli,2023).

2.Textiles for the Home

Additionally, they are utilized in the goods like Sheets for beds and Towels and pillowcases and Because they are worn for extended periods of time, These products aid in maintain hygiene, lowering bacterial development, and enhancing the quality of sleep(Kulkarni,2024; Oka living 2025).

3.Application in Medicine

Ayurvedic fabrics are utilized in medical supplies like hospital fabric and bandages They aid infection management and promotes healing because of their antibacterial and restorative qualities (Rani & singh,2022: Yasotha, 2019).

4.The wellness sector

The following textiles are becoming more and more well-likes in the wellness industry Spa and meditation Clothing.They enhance holistic health activities by relieving stress, Promoting relaxation, and promoting mental equilibrium (AyurSatwa, n.d.: Staheli,2023)

9.Challenges And Limitations of Ayurvedic textiles

Although Ayurvedic fabrics offer numerous advantages ,they also have certain drawbacks.

Expensive : They are costly due to their natural ingredients and laborious processing (Kulkarni,2024:Prajapati &Patel,2025).Time-consuming procedure, Traditional dyeing and herbal extraction require more time (Rangari et al., 2012). **Absence of Consciousness.** Ayurvedic textiles are nor widely known (Das, 2024: Saravanya & Kavutha, 2018). **Absence of appropriate standard and Regulations and quality requirements are unclear** (Nateri & Nateri,2025).

Less evidence from science Consumer trust is diminished by a lack of clinical research (Prajapati & Patel,2025). **Inadequate durability after washing** After frequent washing, the benefits of herbs may diminish (Padamalatha et al.,2025: Rani & Singh,2022).**Limited production on huge scale industrial production is challenging** (Kulkarni,2024).

10.Suggestion

To improve the use of ayurvedic textiles, The following steps are important:

Raise awareness

Through marketing, instruction, and fashion shows

Enhance your research

To demonstrate efficacy, more laboratory research and clinical trails are required(

Assistance from the government

Funding and policies can support the development of sustainable textiles. Encourage the fashion and health care sectors Use in the wellness, medical and apparel industries.

11.Conclusion

Ayurvedic textile are a creative fusion of contemporary textile technology and traditional ayurvedic expertise. These fabrics serve as therapeutic materials that offer health advantages through constant skin contact in addition to being used for apparel. They are safe for human consumption , biodegradable, and composed of natural fibers and herbal extracts. According to studies, ayurvedic textiles can help treat skin disorder, manage long-term ailments like diabetes and arthritis, and promote mental health by lowering stress and enhancing sleep. Because they function similarly to trans-dermal drug delivery systems and are utilized in wound- healing textiles, antimicrobial hospital items, and medicated fabric , they also have pharmacological significance.

Although these benefits, Ayurvedic have a number of drawbacks, such as high production costs, low awareness, scant scientific support , and diminishes efficacy after repeated washing .These restrictions prevent their widespread supplication in the textiles sector. Therefore, to improves their performance and acceptance, further study, improved finishing methods, greater awareness, and government backings re required. All things considered, Ayurvedic textiles offer a great deal of promise to address environmental and health issues, and they may be crucial to the development of sustainable and useful textiles in the future.

BIBLIOGRAPHY

- 1.Agrawal,B.J. (2015). Ayurvastra: Herbal Fabrics designed for Healing.IN Proceedings of the 6th World Congress on Biotechnology,New delhi, India (OCTOBER 5-7,2015).*Journal of Biotechnology & Biomaterials*,5(6).
- 2..AyurSatwa.(n.d.).AyurSatwa- Healing textiles create with the wisdom of Ayurveda.
- 3.AyurSatwa,(n.d.).Ayurvastra Fabrics.
- 4.Ayur vastra.(n.d.).Ayurvastra-herbal healing textiles.
- 5.Can Ayurvedic clothes heal you ? (2019 ,December).
- 6.Dabhole,S.K., &Chavan,P.D.(2020).A review Article of Rasapanchak of Manjishtha (Rubia cordifolia Linn.)according to ayurveda from Brihatrayia& various Nighantu.Ayurlog: *National Journal of Research in Ayurved Science*,8(6).1-5

- 7.Das,A.(2024.November18).Ayur vastra: The ancient Indian Tradition Of healing Textiles.
- 8.Goel, A., Bhardwaj, M. K., & Rani, N. (2011). Application of turmeric dye in the coating of Triphala guggle ayurvedic tablet. *Journal of Applied and Natural Science*, 3(2), 307–311.
- 9.Gupta, C., Prakash, D., & Gupta, S. (2013). Functional clothing: A novel concept for disease therapeutics. *African Journal of Basic & Applied Sciences*, 5(4), 160–166. <https://doi.org/10.5829/idosi.ajbas.2013.5.4.73225>
- 10.HalePule Ayurveda & Yoga ,(n.d.). Ayurvastra: How do our clothes affect our health?
- 11.Jyothirmai,S.,& Panda,S., (2016).Ayurvastra herbal clothing (A new technology to heal naturally). *International Journal of Advance research and Innovative Ideas in education (IJARIE)*,2(4),1166-1171.
- 12.Kulkarni,K. (2024).Ayur vastra: The intersection of Ayurveda and Textiles.Fibre2 Fashion.
- 13.Miho.(n.d.).A detailed guide to Ayurveda and Ayurvedia clothing.
- 14.Minocheherhomji,F.P., & Solanki,B.(2015).Ayurvastra:An innovative alliance of Ayurveda and textile: A review. *Scholars journal of Applied Medical Sciences*,3(2F).925--931.
- 15..Nateri,A.S.,& Nateri,F.S.(2025).Eco -friendly and sustainable antibacterial fictionalization of medical textiles using natural dyes: A review. *Results in Chemistry*.
- 16.Oka Living.(2025).What is Ayurvastra ?Discover the healing power of Ayurvedic textiles.
- 17.Prasath, M. V., Padmalatha, D., & Abarna, K. M. (2025). Sustainable laccase-mediated antimicrobial finish for herbal-dyed cotton textiles. *South Asian Journal of Engineering and Technology (SAJET)*, 15(3), 15.14. <https://doi.org/10.26524/sajet.2025.15.14>
- 18.Patwardhan, B., Mutalik, G., & Tillu, G. (2015). *Integrative approaches for health: Biomedical research, Ayurveda and Yoga*. Academic Press. <https://doi.org/10.1016/C2013-0-19395-6>
- 19.Prajapati,P., & Patel,B.(2025).Sustainable plant- BAsed antimicrobial Agents for textile application:A review. *Research Journal Of chemical Sciences*,15(1),39-49.
- 20.Rangari, N. T., Kalyankar, T. M., Mahajan, A. A., Lendhe, P. R., & Puranik, P. K. (2012). Ayurvastra: Herbal couture technology in textile. *International Journal of*

Research in Ayurveda and Pharmacy, 3(5), 733-736 <https://doi.org/10.7897/2277-4343.03532>.

21.Rani,J., & Singh,S., (2022). Antimicrobial properties of hernal dyes of indian medicinal plants.*Textile & Leather review*,5,199-222.

22.Roshima,J., & Periyasamy,A.P.(2025).Herbal-based antimicrobial textiles: Efficacy of Datura metel extract on cotton and linen. *Indian Journal of Fibre & textile Research*,50,285-291

23.Remya,S.,& Sasikal,R.(2019).Crowdsourced predictive analysis for the international trade of south indian coir products in ayurveda,textile and agriculture. *International Conference on Sustainable Computing inScience, Technology& Management(SsUSCOM)*.714-720.Elsevier SSRN

24.Sabita,D.(2020).To study the impact of clothing behaviour on human health.Sangyaharan Shodha:*International Peer Reviewed Journal*,23(2),46.

25.Saravanya,K.S., & Kavutha,S., (2018). Ayurveda life: A review.*International Journal of Creative Research Thoughts (IJCRT)*.6(1).

26.Singh,p.,&Choudhary,S.(2025).hemp textiles: Traditional Knowledge, Ayurveda and fabric utility in ancient India. *Journal of Global values*,16(Special issue).84-89.

27.Staheli,K.J.(2023, March 2). Ayur veda,textiles and clothing: A harmony of health and fashion.Purusha Ayurveda.

28.Tiwari, S., Gehija, J., & Malviya, H. (2025). Ayurveda merging traditional medicine with sustainable fashion: Medicinal textiles. In *Book title* (Chap. 17). IGI Global. <https://doi.org/10.4018/979-8-3693-7773-4.ch017>

29.Tiwari,S.(2024).Ayurveda: The confluence of traditional medicine and sustainable fashion.*International Journal for Multidisciplinary Research(IJFMR)*,6(1).1-14

30.Yasotha,P.,(2019).Natural antimicrobial agents for textile materials.*World Journal of Pharmaceutical Research*, 8(8),167-176.