



E-ISSN: 2278-4136

P-ISSN: 2349-8234

www.phytojournal.com

JPP 2024; 13(5): 586-590

Received: 06-08-2024

Accepted: 03-09-2024

Dr. Gauri Pratap Waghade

PG Scholar, Rasashastra and
Bhaishajya Kalpana department
YMT Ayurvedic Medical College,
Kharghar, Navi Mumbai,
Maharashtra, India

Dr. Meenakshi Amrutkar

Associate Professor,
Department of Rasashastra and
Bhaishajya Kalpana, YMT
Ayurvedic Medical College,
Kharghar, Navi Mumbai,
Maharashtra, India

Formulation and Physico-chemical evaluation of *Sharir-Durgandhihar Patradi Pradeha* roll-on deodorant

Dr. Gauri Pratap Waghade and Dr. Meenakshi AmrutkarDOI: <https://doi.org/10.22271/phyto.2024.v13.i5h.15130>**Abstract**

Introduction: Sweating is a natural function of our body. It helps to cool body by itself. Sweating usually occurs at under arms, palms, feet and when it mixes with bacteria on skin it produces bad odour and skin discolouration. To prevent this regular bathing, using antiperspirants and deodorants are common. *Acharya Charak* has described *Sharir-Durgandhihar Patradi Pradeha* in *Charak Sutrasthan* chapter 3; *Aragwadhiya Adhayay*. which includes

- *Patra*
- *Ambu*
- *Lodhra*
- *Abhay*
- *Chandan*

All the drugs mention above has anti-perspiring activity and has its own aroma.

Purpose: The purpose of this formulation is to convert the *Pradeha* into new dosage form like roll-on deodorant, Roll-on deodorants offer excellent comfort, protection, flexibility for any lifestyle. This herbal preparation has an Anti-perspiring property.

Method: The aqueous extract of all contents of *Sharir-Durgandhihar Patradi Pradeha* were prepared by using traditional method of distillation by *Tiryak Patan Yantra*, after collecting Aqueous extract i.e. *Arka* -Glycerine and essential oils of *Chandan* and *Ushir* are added in appropriate quantity to achieve desired consistency and effects.

Conclusion: *Sharir-Durgandhihar Patradi Pradeha* Roll-On deodorant fulfils all the criteria of standardization of Roll-On deodorants. It shows Aromatic and Anti-perspiring effect with good absorption rate on skin. Also, further screening will evaluate its efficacy.

Keywords: Roll on deodorant, sharir durgadhihar, anti-perspiring, *Pradeha*, *Sharir-Durgandhihar Patradi Pradeha*, deodorant

Introduction

The concept of Beauty and Cosmetics is as old as mankind and civilization. Ayurveda is a science of Health and Healing, there are lots of formulations mentioned in our classic's. Which has cosmetic purpose. Sweating is a natural function of our body. It helps to cool body by itself i.e. Thermoregulation. Sweating usually occurs at under arms, palms, feet and when it mixes with bacteria on skin it produces bad odour and skin discolouration. Hyperhidrosis is excessive sweating, which means sweating more than normal ^[1]. In humid heat, the sweating occurs, but is not evaporated and as the body temperature is not lowered (because of the non-evaporation of sweat) further sweating occurs and combined deficiency of Sodium and water develops. Hyperhidrosis have a high psychosocial impact on those who suffer from these types of functional deregulation of the sweat glands ^[2]. To prevent this regular bathing, using, Antiperspirants and deodorants are common. *Acharya Charaka* has described *Sharir-Durgandhihar Patradi Pradeha* in *Charak Samhita Sutrasthan Chapter 3, Aragwadhiya Adhyay* ^[3]. All the drugs which are mentioned in this *Pradeha* has anti-perspiring, Antibacterial, *Varnya* properties and has its own aroma.

Pradeha: *Pradeha* refers to a traditional herbal paste or preparation used in Ayurvedic medicine. It typically consists of ground herbs, roots, or other plant materials mixed with a liquid base, such as water or oil, to create a thick, spreadable substance.

Roll-on: A body roll-on is a new dosage form designed for topical application, providing a convenient and targeted delivery of active ingredients. Typically, it comes in a bottle with a rollerball applicator that allows users to easily apply the formulation to specific areas of the skin.

Corresponding Author:**Dr. Gauri Pratap Waghade**

PG Scholar, Rasashastra and
Bhaishajya Kalpana department
YMT Ayurvedic Medical College,
Kharghar, Navi Mumbai,
Maharashtra, India

This research seeks to transform the *Pradeha* into a body roll-on (a new dosage form) for greater feasibility in use.

- **Aim:** Formulation and Physico-chemical evaluation of *Sharir-Durgandhihar Patradi Pradeha* Roll-On Deodorant.
- **Objectives:** To prepare Arka of *Sharir-Durgandhihar Patradi Pradeha* by *Tiryak Patan* method.
- To convert the *Sharir-Durgandhihar Patradi Pradeha* into New Dosage Form like *Sharir-Durgandhihar Patradi Pradeha* Roll-on Deodorant.
- To analyse *Sharir-Durgandhihar Patradi Pradeha* Roll-On Deodorant.

Materials and Methods

Sharir-Durgandhihar Patradi Pradeha in *Charak Samhita Sutrasthan Chapter 3, Aragwadhiya Adhyay* ^[3] BY Acharaya Charak. This study was carried out in two steps-

- Preparation of *Sharir-Durgandhihar Patradi Pradeha* Arka (Aqueous extract)
- Preparation of *Sharir-Durgandhihar Patradi Pradeha* Roll-On Deodorant.
- Analysis of *Sharir-Durgandhihar Patradi Pradeha* Roll-On Deodorant.

Preparation of *Sharir-Durgandhihar Patradi Pradeha* Arka

Table 1: Ingredients of Arka

Sr.no.	Drug Name	Latin Name	Part used	Quantity
1.	Tamal Patra	<i>Cinnamomum tamala</i>	leaves	25 gm
2.	Ambu (sugandhi vala)	<i>Vetiveria zizanoides</i>	Root	50 gm
3.	Lodhra	<i>Symplocos racemosa</i>	Bark	25 gm
4.	Shwet Chandan	<i>Santalum album</i>	Heart wood	25 gm



TAMAL PATRA



AMBU (USHIR)



SHWET CHANDAN



LODHRA

Equipment's

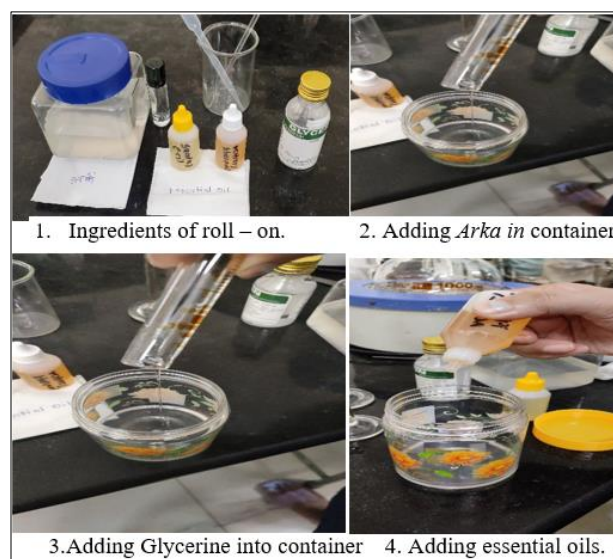
- *Tiryak Patan Yantra*
- Weighing machine
- Container
- Measuring cylinder

Procedure

The preparation of the aqueous extract, known as Arka, involves a systematic process to ensure the extraction of beneficial properties from the selected herbs. Initially, equal quantities of coarse powder from Tamal Patra (25 gm), Sugandhi vala (Ushir) (50 gm), Lodhra (25 gm), and Shweta Chandan (25 gm) are combined and soaked overnight in ten times their volume of water (1lit). This soaking allows the active compounds to begin diffusing into the water, enhancing the potency of the final extract. After the soaking period, the mixture is transferred to a *Tiryak Patan Yantra*, a specialized apparatus that facilitates effective extraction. The mixture is then subjected to a gentle boil over low flame for 45 minutes. This controlled heating ensures that the heat-sensitive compounds are preserved while allowing thorough extraction of the herbal properties. Once the boiling is complete, the mixture is allowed to cool, and the aqueous extract (Arka) is carefully collected. This method not only maximizes the therapeutic benefits of the herbs but also results in a concentrated and easily usable form for further applications.

Precautions

- Hot extraction, higher than required temperature should be avoided. Continuous exposure to higher temperatures may cause certain glycosides to break.
- Standardization of the extraction time is important, because insufficient time results in incomplete extraction, and if the extraction period is prolonged, undesired compounds may be extracted as well.



5. Packaging of roll – on.

B. Preparation of Sharir-Durgandhihar Patradi Pradeha Roll- On Deodorant

Table 2: Ingredients of Roll- On

Sr.no.	Drug Name	Latin Name	Used form	Quantity
1.	Tamal Patra	<i>Cinnamomum tamala</i>	Aqueous extract	20 ml
2.	Ambu (sugandhi vala)	<i>Vetiveria zizanioides</i>	Aqueous extract	40 ml
3.	Lodhra	<i>Symplocos racemosa</i>	Aqueous extract	20 ml
4.	Shwet Chandana	<i>Santalum album</i>	Aqueous extract	20 ml
5.	Glycerine	-	-	33 ml
6.	Sandal wood essential oil	-	Oil based	10-12 drops
7.	Khus essential oil	-	Oil based	10-12 drops

Equipment's

- Weighing machine
- Container
- Filter paper
- Dropper
- Roll- on container
- Measuring cylinder
- Stirrer
- Hand gloves

Procedure

To prepare the final formulation, three parts of the aqueous extract (Arka) are measured and placed into a suitable container. Next, one part of glycerine is added to this mixture, which acts as a humectant, helping to retain moisture and enhance the overall texture of the formulation. Following this, essential oil is added drop by drop, ensuring careful incorporation into the mixture. This gradual addition allows for even dispersion of the essential oils, which not only contribute to the fragrance but also provide additional therapeutic benefits without overwhelming the base. Thorough mixing follows to ensure a uniform consistency and effective blending of all components. Once all components are thoroughly mixed and homogeneously blended, the formulation is packaged in a roll-on container.

Precaution

- Before using all the equipment's were properly cleaned with water and dried.
- All the ingredients should mix homogeneously
- Shake thoroughly.

Observations

- Colour of water in which ingredients were soaked was same as herbal drugs, but the colour of Arka was transparent white.
- Fragrance of Arka had characteristics smell of Chandan, Tamala and Ushir- after adding essential oils fragrance of Chandan overpowers other fragrances.
- Colour of Arka was transparent white but after adding glycerine and essential oil it turns opaque white.
- pH of Arka was around 4 and pH of roll-on changes to 6

Results

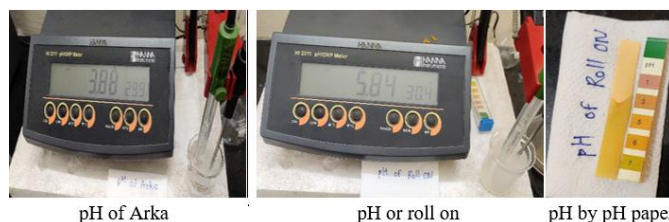
Table 3: Organoleptic parameters

Sr. No	Organoleptic parameters	Sharir-Durgandhihar Patradi pradeh roll-on deodorant
1.	Shabda	Not specific
2.	Sparsha	Shita, snigdha
3.	Rupa	Opaque white
4.	Rasa	Not applicable
5.	Gandha	Sandal wood

Table 4: Physicochemical analysis –

Sr. No.	Physico chemical test	Sharir-Durgandhihar Patradi pradeh roll-on deodorant
1.	pH value	5.84 at 30.4 c
2.	Specific gravity	1.074gmL-1
3.	Wt/ml	1.069
4.	Skin irritation test	No irritation found Compatible for skin
5.	Spreadability	Smooth
6.	Homogeneity,	Homogeneous,

pH value of Arka	3.88 at 29.9 °c
------------------	-----------------



Discussion

All the ingredients mentioned in Sharir durgandhihar Patradi Pradeha has Antibacterial, anti-inflammatory, Varnya, Sangrahi properties.

1. Tamala Patra [4, 5]

Ayurvedic Properties [6]- Rasa – Tikta, Katu, Virya – Ushna, Vipak - Madhur, Guna- Laghu, Tikshna

Tamal Patra is utilized for its aromatic fragrance as it works on body odour [4].

The leaves oil is used in dermatophytic infection and has hypothermic activity

- **Antibacterial activity** [5]: Tamal Patra shows antibacterial activity against *Bacillus subtilis* and *Staphylococcus aureus* species which cause bad odour to sweat.
- **Depigmentation**: With its antioxidant properties, Tamal Patra helps protect the skin from oxidative stress, which can lead to hyperpigmentation (Thakur *et al.*, 2021) [4]. Its use in formulations aimed at promoting an even skin tone is well supported by traditional practices.
- **Anti-inflammatory activity**: The anti-inflammatory effects of Tamal Patra can alleviate itching and discomfort caused by skin irritations. Its use in topical applications helps soothe the skin while promoting healing (Thakur *et al.*, 2021) [4].

2. Ushir [7]

Ayurvedic Properties [8]: Rasa- Tikta, Madhur, Virya-Sheet, Vipak - Katu Guna – Laghu, Ruksha

Acharya Charak included Ushir in Dahaprashamana and Varnya Mahakashay.

- **Antibacterial activity**: Primarily recognized for its cooling properties, Ushir has also demonstrated antibacterial effects. This makes it a useful ingredient in

formulations aimed at soothing inflamed skin while combating bacterial infections (Keerthana J *et al*: J. Pharm. Sci. Innov. 2020; 9(6))

- **Skin lightening:** *Ushir*'s calming effects can reduce inflammation, often contributing to post-inflammatory hyperpigmentation. By promoting skin healing, it aids in restoring an even skin tone (Keerthana J *et al*: J. Pharm. Sci. Innov. 2020; 9(6))
- **Soothing and Anti-Itching Properties** - With its natural cooling effects, *Ushir* is beneficial for treating itchy skin. It helps reduce inflammation and provides a sense of relief, making it a preferred choice in soothing formulations (Keerthana J *et al*: J. Pharm. Sci. Innov. 2020; 9(6)) due to its multifaceted pharmacological actions its usage in cosmetics (*Varnya*), anti-diaphoretic action (*Swedaapanayana*) is increasing.

3. Shweta Chandan^[9]

Ayurvedic Properties ^[10]: *Rasa – Tikta, Madhur, Virya – Sheet, Vipak- Katu, Guna- Laghu, Ruksha*

- **Twagdosahara:** It is useful in the treatment of skin disorders.
- **Durgandhhara:** It helps in diminishing the foul smell of sweat, wounds and mouth etc. *Varnya*: It helps in enhancing the colour complexion of the skin
- **Antibacterial:** The essential oil extracted from the sandalwood plant showed significant antibacterial activity against axilla bacteria, methicillin-resistant *Staphylococcus aureus* (Choudhary *et al.*, 2021)^[9].
- Shweta Chandan also have Anti-inflammatory and antioxidant activities.

4. Lodhra^[11]

Ayurvedic Properties ^[12]: *Rasa – Kashaya, Tikta, Virya – Sheet, Vipak- Katu, Guna- Laghu, Ruksha*

Karma- Sangrahi.

- **Anti-inflammatory:** *Lodhra* can help control acne and soothe the skin.
- **Antioxidant:** *Lodhra* can help protect skin cells from damage caused by free radicals.
- **Astringent:** *Lodhra* can help reduce fine lines and wrinkles.
- **Detoxifying:** *Lodhra* can help solve skin issues like pimples, blackheads, breakouts, and marks on the skin.
- **Blood purifying:** *Lodhra* can help remove toxins from the blood and treat skin infections.
- **Antimicrobial:** *Lodhra* can help fight acne-causing bacteria.

Because of all the properties of *Tamal Patra*, *Ushir*, Shweta Chandan and *Lodhra* discussed above we used *Sharir-Durgandhihar Patradi Pradeha* for antiperspirant roll on preparation for hyperhidrosis. All the ingredients were soaked in 10 times water and *Arka* was prepared using *Tiryak Patan vidhi*, heat was given for 45 min. and around 30- 35% aqueous extract of *Sharir Durgndhihar Patradi Pradeha* were collected and used for roll on preparation.

After extraction pH of extract of *Sharir Durgndhihar Patradi Pradeha* was around 4 and after preparing *Sharir Durgndhihar Patradi Pradeha* Roll-on deodorant pH was 6. Suitable pH for skin is between 5-6 which is mildly acidic. Which means *Sharir Durgndhihar Patradi Pradeha* Roll-on deodorant suitable for every skin type. All the ingredients

show Antioxidant properties - Protect skin from oxidative stress caused by free radicals, which can lead to premature aging and skin damage. Which, enhance skin brightness, appearance and improve overall skin health.

The *Sharir-Durgandhihar Patradi Pradeha* Roll-On Deodorant incorporates multiple beneficial properties that enhance skin health and appearance.

Its antibacterial activity helps reduce or prevent bacterial growth on the skin, providing a cicatrix effect that aids in healing and improving skin clarity.

The astringent properties tighten and tone the skin, minimizing the appearance of pores and controlling excess oil, while delivering a refreshing feel.

Additionally, the anti-inflammatory effects calm and soothe irritated skin, reducing redness and swelling without causing irritation.

This roll-on format offers a convenient topical dosage form designed for precise application of active ingredients. The rollerball applicator allows for mess-free use, ensuring controlled dosage and quick absorption. Its compact size enhances portability, making it suitable for various applications, including pain relief and hydration. The roll-on design also ensures hygienic application and ease of handling, making it ideal for on-the-go use.

Overall, by combining these essential properties in a user-friendly product, the roll-on effectively delivers the therapeutic benefits of herbal ingredients while addressing various skin concerns and promoting a healthy complexion.

Conclusion

The formulation of the *Sharir-Durgandhihar Patradi Pradeha* Roll-On Deodorant demonstrates a comprehensive integration of beneficial properties derived from its key herbal ingredients. The observations reveal that while the *Arka* (aqueous extract) initially appears transparent white, it transforms to an opaque white upon the addition of glycerine and essential oils, indicating effective blending and formulation stability.

The organoleptic and physicochemical analyses confirm the product's quality, with a pH that aligns well with skin compatibility (5-6), ensuring suitability for various skin types. The antibacterial, anti-inflammatory, and antioxidant properties of the ingredients—such as *Tamala*, *Ushir*, Shweta Chandan, and *Lodhra*—collectively contribute to a product that not only combats body odor but also enhances skin health by reducing inflammation, promoting an even skin tone, and providing soothing effects.

Additionally, the *Sharir-Durgandhihar Patradi Pradeha's* *Sheet virya* (cooling properties) and *Sangrahi* properties make it effective in decreasing sweating, further enhancing its functionality as an antiperspirant. Ingredients with cicatrix effects help facilitate the repair of damaged skin, enhance the healing process, and can improve the appearance. These multifaceted benefits highlight the efficacy of the roll-on deodorant in addressing hyperhidrosis while simultaneously nurturing the skin. The roll-on format itself enhances convenience with precise application, controlled dosage, quick absorption, and portability, making it ideal for on-the-go use.

The harmonious blend of ingredients fosters an environment that not only enhances appearance but also protects and revitalizes the skin, making it a valuable addition to cosmetic formulations aimed at promoting overall skin health. Overall, this formulation exemplifies the potential of traditional herbal ingredients in modern cosmetic applications, successfully

merging efficacy with safety for an enhanced user experience. Further Pre-Clinical and Clinical studies are needed to be done for evaluating its efficacy on Hyperhidrosis.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- Oshima Y, Fujimoto T, Nomoto M, Fukui J, Ikoma A. Hyperhidrosis: A targeted literature review of the disease burden. *J Dermatol*. 2023;50:1227–36. <https://doi.org/10.1111/1346-8138.16908>
- Sharma R, Shukla GS, Agarwal R, Goyal M, Tyagi V. A pharmaceutico-analytical study of Shirishadi Sharir Daurgandhyahara Yoga (SSD). *Int J Ayurveda Pharma Res*. 2023;11(7):11–21. <https://doi.org/10.47070/ijapr.v11i7.2876>
- Joshi YG. Charak Samhita. 1st ed. Koperdekar SS, editor. Volume 1, chapter 3, verse 29.
- Thakur S, Walia B, Chaudhary G. Review based upon Ayurvedic and traditional uses of *Cinnamomum tamala* (Tejpatta). *Int J Pharm Sci Rev Res*. 2021;68(2):71–8. DOI:10.47583/ijpsrr.2021.v68i02.011.
- Saroj P, Jadhav MG, Nirankari P, Shah N. *Cinnamomum tamala* (Tamalpatra/Tejpatta) – its ethnobotanical knowledge, phytochemical studies, pharmacological aspects and future prospects. *Int J Curr Sci*. 2022;12(1):532. Available from: www.ijcspub.org.
- Bhavprakash Nighantu of Sri Bhavamisra. Commentary by Padmshri Prof. Krishanchander Chuneekar, edited by Dr. G.S. Pandey. 2015; verse 68, p. 218.
- Keerthana J, *et al*. Usheera (*Vetiveria zizanioides* Linn. Nash): A drug review. *J Pharm Sci Innov*. 2020;9(6):156–61. <http://dx.doi.org/10.7897/2277-4572.096189>
- The Bhavprakash Nighantu with elaborated Hindi commentary by Padmashri Prof. K.C. Chuneekar, edited by Dr. G.S. Pandey. 1998; verses 86–87, p. 239.
- Choudhary S, Chaudhary G. Sandalwood (*Santalum Album*): Ancient tree with significant medicinal benefits. *Int J Ayurveda Pharma Res*. 2021;9(4):90–9.
- The Bhavprakash Nighantu with elaborated Hindi commentary by Padmashri Prof. K.C. Chuneekar, edited by Dr. G.S. Pandey. 1998; verses 11–13, p. 186–7.
- Singh P, Singh R, Gupta LN, Kumar N. Lodhra - A single remedy for different ailments. *IJPBA*. 2015;6(1):1–7.
- The Bhavprakash Nighantu with elaborated Hindi commentary by Padmashri Prof. K.C. Chuneekar, edited by Dr. G.S. Pandey. 1998; verses 215–216, p. 128–30.
- Komala O, Wiendarlina IY, Rizqiyana N. Antibacterial activity of roll-on deodorant with *Pluchea indica* (L.) leaf extract against *Staphylococcus epidermidis* (Evans 1916) *in vitro*. In: The 2nd International Conference on Natural Resources and Life Sciences (NRLS); 2019; [location if available]. IOP Conf Ser: Earth Environ Sci. 2019;293:012031. DOI:10.1088/1755-1315/293/1/012031.
- Stenzaly A, Schreiber J, Scholermann A, Dieck KH, Rippke F, Bielfeldt S. Axillary pH and influence of deodorants. *Skin Res Technol*. 2000;6(2):87–91. <https://www.ncbi.nlm.nih.gov/pubmed/11428948>.
- Janczura M, Sip S, Cielecka-Piontek J. The development of innovative dosage forms of the fixed-dose combination of active pharmaceutical ingredients. *Pharmaceutics*. 2022;14(4):834. DOI:10.3390/pharmaceutics14040834. PMID: 35456668; PMCID: PMC9025674.