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**CROSS- SECTIONAL STUDY TO GATHER OPINION ABOUT THE  
EFFECTIVENESS OF PSORAKOT AYURVEDIC HANDMADE SOAP  
AMONG A MIX OF INDIVIDUALS HAILING FROM KERALA WITH  
SKIN PROBLEMS**

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**ABSTRACT**

The skin, the largest organ in the human body, plays a pivotal role in both health indications and personal appearance. Despite its significance, skin disease prevention and management have historically received less attention owing to their low mortality rates. However, recent findings from the Global Burden of Disease Study identify skin diseases as the fourth leading cause of nonfatal disease burden and rank them 18<sup>th</sup> among the top 20 diseases in terms of Disability-Adjusted Life Years (DALYs).

In Ayurveda, comprehensive treatment approaches encompass both internal and external modalities, including application of local herbal paste (Lepam) medicated oils (Tailam), and medicated powders (Chooranam). Nonetheless, the practicality of such treatments may be challenging for individuals who prioritize convenience.

Addressing this need, Arya Vaidya Sala, Kottakkal, has developed an Ayurvedic medicated soap entitled PSORAKOT Ayurvedic Handmade Soap enriched with over 80%herbal content. To evaluate its effectiveness, a descriptive cross-sectional study was conducted among 253 individuals from Kerala who had experienced skin issues. Among them, 237 reported soap as outstanding, very satisfactory, or satisfactory. Notably, 155 (61%) and 122 (48%) participants, regardless of sex, age, skin type, observed significant improvements in skin cleanliness and softness, respectively, post-usage.

Furthermore, out of the 253 respondents, 180 had a history of skin problems, with 136 (75%) reported reduced itching, 162 (90%) experienced diminished dryness, and 80 (44%) observed improved skin discoloration following soap usage.

This study underscores the promising effectiveness of Arya Vaidya Sala's PSORAKOT Ayurvedic Handmade Soap in addressing various skin concerns and, offering a convenient and beneficial solution for individuals seeking effective skincare remedies.

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**Keywords - Ayyappala, Nimba, Haridra, PSORAKOT Ayurvedic Handmade Soap**

## INTRODUCTION

The skin, the largest organ of the human body, serves as a vital interface between the internal physiological environment and external world. Despite their crucial role, the burden of skin diseases often remains underestimated, despite their widespread prevalence [1]. Skin diseases are the fourth most common cause of human diseases globally, affecting nearly one-third of the world's population. In various geographical regions of India, the prevalence of skin diseases in the general population

ranges from 7.9% to 60% [2], highlighting the significant impact of these conditions on public health.

The burden of skin and subcutaneous diseases measured in DALYs (Disease Adjusted Life Years) was 42,883,695.48 in 2019, in which 5.26% of which were years of life lost; and 94.74% of which were years lived with disability [3]. The incidence of new cases and mortality rates from skin diseases were particularly pronounced in South Asia, with

the highest number of cases occurring in the 0 to 4-year age group. While skin diseases affect both sexes, incidence rates are slightly higher among men than among women [4].

In Ayurveda, skin diseases are comprehensively addressed under the category of Kushta, and their etiology is often associated with imbalances in the three doshas (Vata, Pitta, and Kapha). Ayurvedic treatments for skin diseases encompass both internal and external modalities, with the latter typically involving applications such as lepam (herbal paste), tailam (medicated oils), and choornam (medicated powders). However, the practicality of these treatments may be hindered for individuals seeking convenience amid busy lifestyles.

In response to this need, Arya Vaidya Sala, Kottakkal, has developed a medicated soap - PSORAKOT Ayurvedic Handmade Soap enriched with herbal ingredients, constituting over 80% of its weight. This soap, containing key ingredients such as Ayyappala kera tailam, Haridra (*Curcuma longa*), and Nimba (*Azadirachta indica*), offers a convenient and effective solution for skincare. Ayyappala kera tailam, primarily containing Swetakutaja (*Wrightia tinctoria*), exhibits astringent, antibacterial, and anti-dandruff properties, making it beneficial for the treatment of various skin and scalp disorders.

Nimba (Neem) is renowned for its antimicrobial activity and is particularly effective against conditions such as acute eczema, ringworm infestation, and scabies. The antimicrobial activity of different neem extracts and products has been well documented [5].

Haridra, another key ingredient known as varnya, is lauded in Ayurvedic texts because of its complexion-enhancing properties. Its synonyms, such as Kanchani and Nisha, further emphasize its ability to impart a golden hue and enhance skin beauty. Additionally, Haridra is recognized for its Vishaghna antitoxic and Kushtaghna - skin disorder-reducing properties, as categorized by Charaka [6].

To evaluate the efficacy of this medicated soap, a cross-sectional study was conducted among 253 individuals from Kerala who had experience various skin issues. Preliminary findings suggest promising results, including softer skin, reduced itching, and diminished dryness, irrespective of age, sex, and skin type.

The development of PSORAKOT Ayurvedic Handmade Soap offers a convenient and effective approach to skincare, addressing the rising burden of skin diseases while aligning with the principles of Ayurveda. Further research and clinical trials are warranted to

validate these preliminary findings and expand our understanding of the therapeutic potential of Ayurvedic skincare interventions.

### Methodology

Name of the Product : PSORAKOT  
Nature of medicine : Ayurvedic  
Handmade Soap

### Ingredients

| S. No. | Malayalam Name | Sanskrit Name | Botanical Name / Scientific Name | Part used | Qty. of raw materials (Each 75 g is prepared out of) |
|--------|----------------|---------------|----------------------------------|-----------|--|
| 01     | Ayyappalaila   | Swetakutaja   | <i>Wrightia tinctoria</i>        | Lf.       | 193.650 g  |
| 02     | Aryaveppila    | Nimba         | <i>Azhadirachta indica</i>       | Lf.       | 12.150 g   |
| 03     | Velichenna     | Keratailam    | <i>Cocos nucifera</i>            | OL.       | 24.195 g   |
| 04     | Aryaveppila    | Nimba         | <i>Azhadirachta indica</i>       | Lf.       | 8.550 g  |
| 05     | Pachamanjal    | Haridra       | <i>Curcuma longa</i>             | Rz.       | 8.550 g  |
| 06     | -              | -             | Palm oil                         | As it is  | 24.195 g   |
| 07     | -              | -             | Butylated hydroxy toluene        | As it is  | 0.049 g  |
| 08     | -              | -             | Talc                             | As it is  | 3.750 g  |
| 09     | -              | -             | Sodium benzoate                  | As it is  | 0.173 g  |
| 10     | -              | -             | Sodium Methyl hydroxyl benzoate  | As it is  | 0.150 g  |
| 11     | -              | -             | Sodium Propyl hydroxyl benzoate  | As it is  | 0.015 g  |
| 12     | -              | -             | Sodium hydroxide                 | As it is  | 7.050 g  |
| 13     | -              | -             | Perfume                          | As it is  | Q.s  |

**Method of preparation:** SN 01 to SN 02 are formulated and washed to remove mud and foreign particles. *Swarasa* of SN 01 is extracted using a juice expeller machine. SN 02 is ground to paste to make *kalka*. SN03 is taken in an Open pan and heated along with *Kalka Dravya* and *Swarasa* along with SN06. The heating is continued till *Sneha paka lakshana* are observed. The oil is filtered, SN 07 is added and stored in a suitable vessel. SN 04 and SN05 are weighed, washed and *Swarasa* is extracted using a juice expeller machine. The resultant *Swarasa* is filtered and SN09 to SN11 are added and dissolved. SN12 is dissolved in the *Swarasa* and mixed with prepared oil and SN 08 and stirred under a stirrer with heating. Once the mixture

thickens, add SN 13 and continue mixing. The thickened mixture is poured in to a setting box. The mixture is kept undisturbed for 2 days and cut in to bars using a wire cutter. The cut pieces are stamped and packed in pouches and then in mono cartons. The mono cartons are then packed in to Master cartons.

**Objective:** The objective of this study was to assess the effectiveness of medicated soap among individuals residing in Kerala who experience skin problems.

**Review of Literature:** A comprehensive review of the literature was conducted, encompassing references from traditional Ayurvedic texts and contemporary journals.

### Materials:

Primary Resources:

- Bruhatrayi and laghutrayi, along with available commentaries
- Classical nighantus such as Madanapala nighantu and Bhavapraksha nighantu

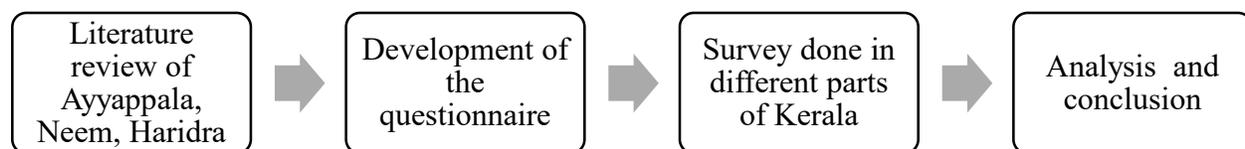
### Secondary Resources:

- Relevant modern literature
- Previous research works
- MD and PhD theses
- Journals, articles, and published research papers
- Subject-related data available online

### Development of Questionnaire:

- A questionnaire was developed and subjected to face validity.
- Expert suggestions, including input from clinicians with more than 25 years of experience, were incorporated.
- Over 90% of the questionnaire's content was endorsed by the experts.
- Methods:

### Plan of the Study:



- Primary and secondary resources were examined in accordance with the hypothesis and study plan.
- The essential materials were gathered, reviewed, reorganized, and thoroughly analyzed to create a solid basis for the survey study
- Conduct of Survey:

Study Design: Observational Descriptive Cross-sectional study

Study Population: Individuals living in Kerala who are experiencing skin issues.

Inclusion Criteria:

- Age group: 3 – 80 years

- Both genders were included.

Exclusion Criteria:

- Individuals unwilling to participate.

Sample Size Calculation:

$$n = \frac{Z_{1-\alpha/2}^2 \overset{\text{Expected Proportion}}{p(1-p)}}{\underset{\text{Absolute Error}}{d^2}}$$

- Sample size was calculated using the formula:  $Z_{1-\alpha/2} = 1.96$ ,  $P = 65\%$ ,  $d = 6\%$
- Considering the 65% prevalence of medicated soap effectiveness and a

6% margin of precision, the calculated sample size was 242.

- A total of 253 responses were received, exceeding the calculated sample size.

#### Data Collection:

- Primary data collection was performed using a structured questionnaire via Google Form.

#### Statistical Analysis:

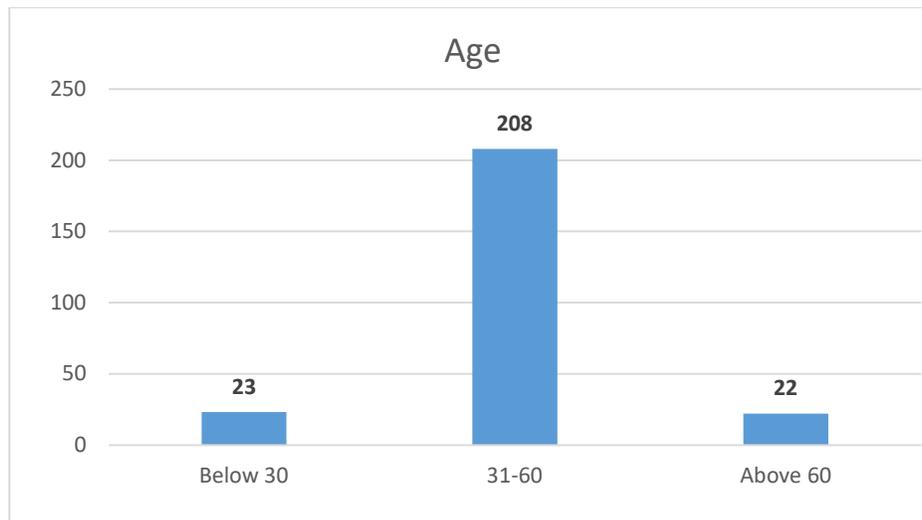
- The analysis will include the use of frequencies, percentages, valid and cumulative percentages, as well as diagrammatic representations of the data.
- Crosstabs and Chi-square tests will be employed for analysis.

#### Observation and Analysis

##### Observation

1) **Figure -1-** Age of the respondents

- Age Distribution:



**Figure 1: Age of the respondents**

- The majority of respondents (208) fell in the age category of 31-60, followed by 23 below 30 and 22 above 60.
  - Gender: Out of 253 responses, 156 (61.7) were male and 97 (38.3) were female.
- 2) **Figure – 2** – Nature of the skin
- Nature of Skin:



Figure 2: Nature of the skin

- Out of 253 respondents, 49% (124) had normal skin, 34.4% reported that they have dry skin and only 16.6 % (42) had oily skin.
- Hygiene Perception: A total of 155 respondents felt that cleanliness after

soap usage was very satisfactory or outstanding.

### 3) Figure – 3- Feeling of cleanliness after use (Hygiene)

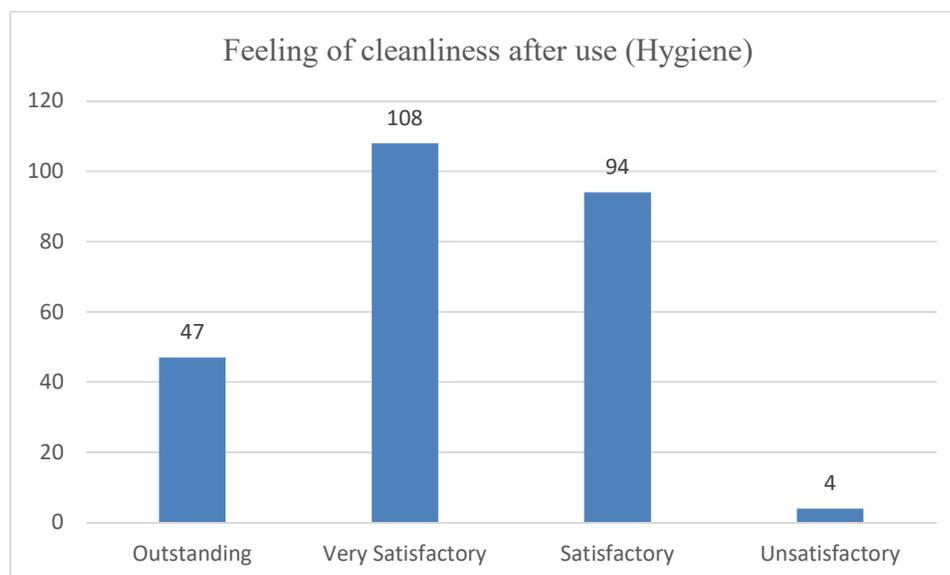


Figure 3: Feeling of cleanliness after use (Hygiene)

4) Figure – 4 - Skin Softening:

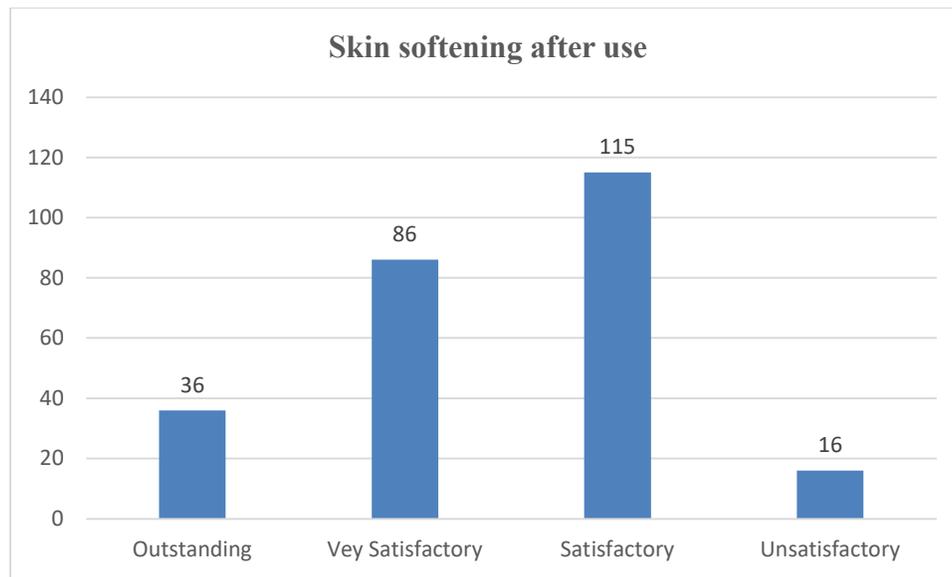


Figure 4: Skin Softening

122 Respondents found skin softening after soap usage very satisfactory or outstanding. Analysis

1. Age and Cleanliness:

|       |          | Feeling of Cleanliness ( Hygiene) after use |              |                   |             | Total |
|-------|----------|---|--------------|-------------------|-------------|-------|
|       |          | Unsatisfactory                              | Satisfactory | Very Satisfactory | Outstanding |       |
| Age   | Below 30 | 0   | 8            | 10                | 5           | 23    |
|       | 31-60    | 3   | 83           | 87                | 35          | 208   |
|       | Above 60 | 1   | 3            | 11                | 7           | 22    |
| Total |          | 4   |              | 108               | 47          | 253   |

- Notably, 18 out of 22 senior citizens rated cleanliness after soap usage as outstanding or very satisfactory.

2. Age and Softening of Skin:

|       |          | Softening of the skin after use |              |                   |             | Total |
|-------|----------|---------------------------------|--------------|-------------------|-------------|-------|
|       |          | Unsatisfactory                  | Satisfactory | Very Satisfactory | Outstanding |       |
| Age   | Below 30 | 1                               | 8            | 9                 | 5           | 23    |
|       | 31-60    | 15                              | 98           | 66                | 29          | 208   |
|       | Above 60 | 0                               | 9            | 11                | 2           | 22    |
| Total |          | 16                              | 115          | 86                | 36          | 253   |

Majority of the respondents (122), in spite of age opined that the feeling of ‘softening of the skin’ after usage of the soap is either outstanding or very satisfactory. In this more than 50% of the respondents above the age of 60 also opined that the feeling of softness of

skin after usage of the soap is either outstanding or very satisfactory.

3. Age and Reduction in itching: Most respondents (133) observed reduced itching after soap use, irrespective of age.
4. Age and Dryness Reduction:

**Table 3: Cross tabulation between Age and reduction of dryness after usage of soap.**

|       |          | Dryness  |           |         |                   | Total |
|-------|----------|----------|-----------|---------|-------------------|-------|
|       |          | Worsened | No change | Reduced | Very much reduced |       |
| Age   | Below 30 | 0        | 9         | 10      | 4                 | 23    |
|       | 31-60    | 10       | 66        | 101     | 31                | 208   |
|       | Above 60 | 0        | 6         | 13      | 3                 | 22    |
| Total |          | 10       | 81        | 124     | 38                | 253   |

Most of the respondents (162), in spite of age, opined that after usage of the soap, the feeling of ‘dryness of the skin’ was either reduced or very much reduced. In this more than 60% of the respondents under the age category of above 60 also opined that

the feeling of ‘dryness of the skin’ after the usage of soap was reduced or very much reduced.

- Association Tests:

**Table 4: The test for association of rating of medicated soap with age**

|                    | Value               | df | Asymp. Sig. (2-sided) |
|--------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 13.715 <sup>a</sup> | 6  | .033                  |
| N of Valid Cases   | 253                 |    |                       |
| a.                 |                     |    |                       |

The test for the association of the rating of medicated soap with age was significantly associated with a P value of .033(<.05).

Significant associations were found between soap rating and age,

**Table 5: Test for association between skin problems and unnatural thickening of the skin.**

| Chi-Square Tests   |                     |    |                       |
|--------------------|---------------------|----|-----------------------|
|                    | Value               | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 20.303 <sup>a</sup> | 9  | .016                  |
| N of Valid Cases   | 253                 |    |                       |

The test for the association between the incidence of skin problems and the ability of the soap to reduce unnatural thickening of the

body was found to be statistically significant with a p value of .016(<.05).

**Table 6: Test for association between incidence of skin problems and overall rating of the soap**

| Chi-Square Tests   |                     |    |                       |
|--------------------|---------------------|----|-----------------------|
|                    | Value               | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 23.057 <sup>a</sup> | 9  | .006                  |
| N of Valid Cases   | 253                 |    |                       |

The test for association of incidence of skin problems and overall rating of the soap was

found to be statistically significant with a p value of .006(<.05).

**Table 7: The test for association of hygiene and overall rating of the soap**

| Table 7: The test for association of hygiene and overall rating of the soap  |                      |    |                       |
|--|----------------------|----|-----------------------|
|  | Value                | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square   | 118.224 <sup>a</sup> | 9  | .000                  |
| N of Valid Cases   | 253                  |    |                       |
| The test for association of hygiene and overall rating of the soap is statistically highly significant with a p value 0.001 (<.05) |                      |    |                       |

**RESULTS AND DISCUSSION**

**RESULT**

Out of 253 individuals from Kerala with incidence of skin problems, 237 (17 + 74+146) individuals positively rated the soap as outstanding, very satisfactory, or satisfactory. It was observed that 155(61%) and 122(48%) individuals among them, irrespective of gender, age and nature of skin, found excellent results in cleanliness and

softening of the skin, respectively after usage of the medicated soap.

Out of 253 respondents, 180 patients had incidence of skin problems and in, 136 (75%) patients observed reduction in itching after usage of the soap, 162(90%) patients observed reduction in dryness, and 80 (44%) patients observed improvement in the discoloration of skin. The major findings are shown in the following tables.

**Table 8: Showing the level of satisfaction of medicated soap among the respondents**

| Sl. No. | Category   | Very satisfactory | Outstanding |
|---------|--|-------------------|-------------|
| 1       | Cross tabulation between nature of skin and overall rating                   | 77                | 22          |
| 3       | Cross tabulation between nature of skin and feeling of Cleanliness (Hygiene) | 108               | 47          |

Table 9: Showing the reduction of symptoms among the patients after the usage of the medicated soap

| Sl. No. | Category  | Reduced      | Very much reduced      |
|---------|---|--------------|------------------------|
| 1       | Cross tabulation between age and reduction of itching                         | 93           | 40                     |
| 2       | Cross tabulation between age and reduction of dryness                         | 124          | 38                     |
| 3       | Cross tabulation between gender and discoloration of the skin                 | 59           | 21                     |
| 4       | Cross tabulation between Incidence of skin problems and softening of the skin | 86(Improved) | 36(Very much improved) |

The study demonstrated positive outcomes regarding the effectiveness of soap in reducing skin problems. Significant

associations highlight the correlation between soap usage and symptom alleviation, emphasizing its potential in treating skincare.

Table 10: Showing the data regarding the 'significant test for association'

| Sl. no | Category  | P value |
|--------|---|---------|
| 1      | The test for association of overall rating of medicated soap with age   | 0.033   |
| 2      | The test for association of incidence of skin problems and its ability to reduce unnatural thickening of the body | 0.016   |
| 3      | The test for association of incidence of skin problems and overall rating of the soap                             | 0.006   |
| 4      | The test for association of hygiene and overall rating of the soap  | 0.001   |

## DISCUSSION

By using medicated soap, the majority of the respondents found a reduction in their

symptoms, which could be due to the reasons mentioned below.

Table 11: Showing the properties of ingredients of medicated soap

| Drug      | Rasa                 | Guṇa            | Vīrya | Vipāka | Dosha haratva | Karma                            |
|-----------|----------------------|-----------------|-------|--------|---------------|----------------------------------|
| Ayyappala | Kashaya, Tikta, Katu | Laghu, snidgdha | Ushṇa | Katu   | Kapha pitta   | Raktasodhini, Kandoohara,        |
| Nimba     | Tikta                | Laghu,          | Seeta | Katu   | Kapha Pitta   | Krimighna, Kushtaghna, Kandughna |
| Haridra   | Tikta, Katu          | Rooksha         | Ushṇa | Katu   | Kapha Pitta   | Krimighna, Kushtaghna, Varṇya    |

By using soap, the majority of patients have found a reduction in itching, and it is notable that according to classical references, the major ingredients of soap, namely *Ayyappala*

and *Nimba* are Kanduhara (which reduces itching) [7]. Charaka has mentioned that proper usage of medicated oils gives snidgdha (unctuous), slakshana (smooth) properties to

the skin and it also help the skin to stay 'tanu' (helps to soften the skin) [8].

It also reduces discoloration, as Ayyappala has Raktasodhini (blood purification) properties, and pure blood equals healthy skin in most cases. According to Bhavapraksha, Haridra includes Tvakdosahara, Varnya and etc. Therefore, all these factors contribute to reducing skin discoloration.

Both Haridra and Nimba are Krimighna(antimicrobial), which really contribute to the hygiene factor that is delivered after usage of the soap.

1. Addressing the Prevalence of Skin Diseases: Skin diseases pose a significant global health burden, affecting a large portion of the population. In India, prevalence varies widely across different regions, highlighting the importance of effective skincare solutions.
2. Convenience of Medicated Soaps: Busy individuals often prioritize convenience in their skincare routines. Medicated soaps offer a practical solution, provide therapeutic benefits, and are easy to use.
3. Efficacy of Herbal Ingredients: The PSORAKOT Ayurvedic Handmade Soap developed by Arya Vaidya Sala Kottakkal contains herbal ingredients,

such as Ayyappala, Haridra, and Nimba, which are known for their therapeutic properties. These ingredients contribute to the reduction of symptoms such as itching, dryness, and discoloration.

4. Cross-Sectional Survey Findings: The cross-sectional survey of 253 individuals from Kerala with skin problems revealed promising results. A significant proportion of respondents reported excellent outcomes in terms of cleanliness and softening of the skin after using medicated soap.
5. Reduction of Symptoms: Among individuals with skin problems, a substantial number experienced reductions in itching, dryness, and skin discoloration after using soap. This finding highlights the effectiveness of soap in alleviating common skin issues.

## CONCLUSION

1. Skin diseases rank as the fourth most prevalent cause of human illness. The prevalence of skin diseases across various geographic regions of India ranges from 7.9% to 60% in the general population.

2. Individuals who are busy and who always give importance to convenience medicated soaps become very helpful in the skin care routine.
3. Kottakkal Arya Vaidya Sala has developed a medicated soap entitled PSORAKOT Ayurvedic Handmade Soap that has more than 80 % of its weight filled with herbal contents. It contains *Ayyappala kera tailam*, *Haridra (Curcuma longa)* and *Nimba (Azadirachta indica)*. *Ayyappala keratailam* mainly contains *Swetakutaja (Wrightia tinctoria)*.
4. To assess the effectiveness and benefits of the soap, a cross sectional survey was conducted among 253 individuals from Kerala with incidence of skin problems and it was observed that 155(61%) and 122(48%) individuals among them, irrespective of sex, age, and nature of skin, found excellent result in cleanliness and softening of the skin, respectively, after usage of the medicated soap.
5. 180 patients had incidence of skin problems; among them, 136 (75%) patients observed reduction in itching after usage of the soap, 162(90%) patients observed reduction in dryness, and 80 (44%) patients

showed improvement in skin discoloration of skin.

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### Conflict of interest

There is no conflict of interest

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