

A Comparative Clinical Study Of Shirishadi Sharir Daurgandhyahara Powder And Its Spray In The Management Of Swedadhikya (Hyperhidrosis)

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Abstract

The word Ayurveda means "Science of Life." Ayurvedic information began in India 5,000 years ago and is often referred to as the prior "Mother of All Healing." The word cosmetic is derived from the Greek word "*Kosmeticos*" meaning having the power to arrange skilled in decorating. The term cosmetics article intended to be rubbed, poured, sprinkled or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying and promoting attractiveness. Sweating is a bodily function that helps regulate your body temperature, that's function called perspiration and it is the release of a salt-based fluid from your sweat glands. The moist environment created by Hyperhidrosis condition, creates an ideal conditions for an overgrowth of bacteria. In hyperhidrosis, bacteria break down certain proteins in the sweat into acids, so it is not the bacteria that stink. It is the by-product of the bacteria breaking down the protein. However, the odour developing via degradation of sweat by bacteria can be embarrassing, can affect self-esteem, and can have psychological consequences. Therefore, deodorants and antiperspirants are an essential part of most consumers' daily personal care routine. **Objectives:** To observe, and Standardize the Pharmaceutical & Analytical and clinical trial parameters of Shirishadi Sharir Daurgandhyahara(SSD) Powder & SSD Spray in Swedadhikya condition. **Methods:** A cross-sectional observational study was conducted on 30 volunteers divided into 2 groups: Group-A, Group-B with 15 participants in each group.

Keywords: Hyperhidrosis, SSD Powder, SSD Spray, Clinical trial & Observational Study

INTRODUCTION

Ayurveda was formally perceived by WHO (World Health Organization) in 1976. Ayurveda supports certain lifestyle mediations and characteristic therapies to restore the harmony between the body, mind, soul, and climate. Entire Ancient culture attempted to accomplish each of the four prime objectives of life, with the goal that they had a smooth, sound, protected, guaranteed consistent and solid way of life. Sweating is a normal physiological process; sweat is 99% water with some salt (NaCl), vitamin c, antibodies, traces of metabolic wastes and lactic acid composition. It's a natural process to cool the body temperature. Thermal and emotional factors promote sweating. ¹Sweda is the Mala of Medo dhatu. According to Ayurveda, sweda is such a dhatu mala, which is depicted under the three important mala's of the body. Hyperhidrosis and Bromhidrosis both have a high psychosocial impact on those who suffer from these types of functional deregulation of the sweat glands. Numerous treatment modalities have been attempted, most with little achievement. As of late, there has been an expanded interest in these problems, because of the presentation of botulinum poison into medication as a methodology for treating muscle issues, yet additionally Hyperhidrosis.

AIMS & OBJECTIVES

1. To assess the role of Shirishadi Sharir Daurgandhyahara(SSD) Powder in the management of Swedadhikya & Daurgandhya.
2. To assess the role of SSD Spray in the management of Swedadhikya & Daurgandhya.
3. To compare the efficacy of SSD Powder & SSD Spray in the management of Swedadhikya & Daurgandhya.

MATERIAL & METHODS

1. Selection of Patients

Patients who meet the diagnostic criteria for Swedadhikya & Daurgandhya were chosen at random, regardless of their sex, religion, career, or other factors and were between the ages of 10 to 40 from O.P.D. of hospital of University College of Ayurveda, Karwar, Jodhpur, with features satisfying the inclusion criteria.

2. Criteria of diagnosis

On the basis of classical Ayurvedic signs and symptoms, all of the patients were diagnosed and analyzed extensively and patients were assessed using a specially designed clinical performa. A comprehensive history was taken.

In this present study a total of 30 volunteers were taken and randomly divided in to two groups (Group A & Group B) of 15 volunteers each i.e. one applying SSD Powder and the other applying SSD Spray.

Type of Study: Randomized Comparative Clinical Trial.

INCLUSION CRITERIA

- Physiological sweating
- Age group above 10 yr old
- Without involvement of any systemic disorder
- Obesity.

EXCLUSION CRITERIA

- Defervescence of fevers
- Hyperthyroidism
- Diabetic patient
- Psychiatric disorder
- Hypertension
- Chronic heart disease

^{2,3}PREPARATION OF MEDICINES

^{4,5}Table no.1 SSD POWDER

| S.N | Ingredients | Used Part | Raw drug weight(gm) | Weight after sieving(200 no.sieve)gm | Residue weight gm | Loss of weight in % | Powdered drug colour |
|-----|-------------|-----------|---------------------|--------------------------------------|-------------------|---------------------|----------------------|
| 1. | Shirisha | Stem bark | 362 | 215gm | 116.6 | 40.60 | Dark reddish brown |
| 2. | Ushira | Root | 350 | 203 | 126.7 | 42 | Greyish brown |
| 3. | Nagkesara | Stigma | 365 | 211 | 155 | 42.19 | Coffee brown |
| 4. | Lodhra | Stem bark | 365 | 210 | 162 | 42.46 | Dark Brown |
| 5. | Priyangu | Fruit | 350 | 220 | 118 | 37.14 | Light brown |
| 6. | Aguru | Heartwood | 370 | 201 | 134 | 45.67 | Black |
| 7. | Kutha | Heartwood | 380 | 219 | 138 | 42.36 | Deep brown |
| 8. | Chandana | Heartwood | 350 | 200 | 140 | 42.85 | Brown |
| 9. | Total | | 2892 | 1679 | 1090.3 | 41.94 | Off white |

Table No 2 Showing the Modern Chemicals

| S.N | Chemical | Quantity(gm) |
|-----|-------------------|--------------|
| 1. | Calcium carbonate | 600 |
| 2. | Zinc stearate | 250 |
| 3. | Talc | 3600 |

| | | |
|----|-------|------|
| 4. | Borax | 60 |
| 5. | Total | 4510 |

^{6,7}Table no. 3 SSD Spray

| S.no. | Ingredients | Quantity |
|-------|------------------------|----------|
| 1. | Shirisha extract | 12.5gm |
| 2. | Lodhra extract | 12.5gm |
| 3. | Nagkesara extract | 12.5gm |
| 4. | Kutha essential oil | 12.5 ml |
| 5. | Priyangu essential oil | 12.5 ml |
| 6. | Agaru essential oil | 12.5 ml |
| 7. | Ushira essential oil | 12.5 ml |
| 8. | Chandana essential oil | 12.5 ml |
| 9. | Isopropyl alcohol | 1250 ml |
| 10. | Propylene glycol | 25 ml |
| 11. | Water | 125 ml |
| 12. | Propellant | 1000 ml |

DURATION

Study Duration: One month

Treatment Duration: One month

OBSERVATION AND RESULTS

Demographic analysis can cover whole groups defined by criteria such as age, sex, education, religion, occupation, marital status, socio economic status etc. The results obtained are discussed as follows

Age wise- Majority of volunteers i.e., 13.33% were from the age group of 11-20 years, 66.66% of patients were from age group of 21-30 years, 10% of patients were from age group of 31-40 years, 6.66% of patients were from age group of 41-50 years, 3.33% of patients were from age group of 51-60 years. According to Acharya Charaka (Ch. Vi. 8/122), the age between 16 to 30 yrs, is Vivardhamana Dhatu gunaavastha notably the beginning period of Shukra Dhatu's functional condition (Abhiyakti & Vriddhi), and it is also the age of Pitta kala in the body. According to the data above, the majority of the patients were in this age range. The vitiation of Dosha & Dushya is caused by the preponderance of Shukra Dhatu and Pitta Dosha as well as unbalanced food regimen and a changed way of life.

Sex wise- Most of the volunteers registered i.e. 60% were females and male were 40%, because females are more conscious for their beauty.

Marital status- 56.66% of the volunteers were married and 43.33% were unmarried.

Socio Economic status- Most of the registered volunteers belonged to middle class group i.e. 73.33%, 23.33% were rich and 3.33% were poor. This is showing the economic status of the area population where the study was commenced.

Occupation wise- Maximum no. of volunteers registered i.e. 73.33% were working, 20% were student and 6.66% were housewife. Because, they belong to a middle age group who care about their lifestyle.

Literacy wise- Mostly registered individuals were 96.66% were literate. Literacy does not have any direct relation with Hyperhidrosis and Bromhidrosis but as the rate of literacy increase the consciousness regarding the mental & physical well being.

Diet wise- Mostly registered individuals were vegetarians i.e. 90% and 10% were mixed. Most of the patients i.e. 90% were Vegetarian because more Hindu population was registered.

Agni wise- Maximum no. of volunteers registered were samagni i.e. 53.66, 36.66 were teekshnagni, 23.33 were mandagni, 3.33 were vishamagni. indicates that, when Pitta is dominant then agni can be excessive or aggravated.

Koshtha wise- Maximum no. of volunteers registered were madhyam koshtha i.e. 76.66%, 20% were krura koshtha & 3.33% were mridu koshtha. In young age, koshtha is usually madhyam.

Dehika prakriti wise- Mostly registered volunteers i.e. 63.33% Pittakaphaja, 36.66% were Vatapittaja prakriti.

Manas prakriti wise- Mostly registered volunteers i.e. 100% rajasika.

Rasa sevana- Maximum no. of registered volunteers were having their diet abundant in lavana rasa i.e. 40%, 23.33 were having madhura and katu rasa, 13.33 were having amla rasa sevana. In this study it was discovered that the majority of volunteers prefer Lavana rasa, Katu rasa, Amla rasa as part of their diet. Excessive intake of three three rasas increases and vitiates the Pitta in the body, thus participate in increasing the amount of sweating and foul odor.

Addiction wise- Maximum no. of volunteers registered were addicted to i.e. 70% tea, 20% coffee, 3.33% smoking and 6.66% tobacco.

Emotional status wise- Maximum no. of volunteers registered were normal i.e. 46.66%, 13.33% were stressed & 40% were anxious.

Habitat wise- Mostly registered volunteers were from urban area i.e. 96.66% & 3.33% were rural. Because of the hot climatic condition people often tend to have excessive sweating.

Desha wise- Mostly registered volunteers i.e. 90% jangala desha and 10% were sadharan desha. Acharya Charaka described in vimana sthana that desha is one of the factors which have to be assessed in ascertaining the Hetu. Hot weather in jangaladesha and people suffer from disease of Pitta and Vata. In jangaladesha people eat certain food like garlic and onion in excess quantity.

Chronicity wise- Mostly registered volunteers were chronic i.e. 50%, 33.33% were sub-acute & 16.66% were acute. This may be because, the disease has correlation to Dehika prakriti and people often suffered from excessive sweating during the summer season.

Satmaya wise- mostly registered volunteers i.e. 90% were madhyam satmaya.

Abhyavarana shakti wise- Mostly registered volunteers i.e. 83.33% had madhyam, 10% avara, 6.66% had pravara abhyavarana shakti.

Vyayama shakti wise- Mostly registered volunteers i.e.60% had madhyam, 23.33 avara, 16.66% had pravara vyayama shakti

Family history wise- It was noted that a total 53.33% of volunteers showed incidence of family history which proved the genetic involvement of the disease.

Symptoms: All the volunteers had symptoms like Excessive sweating symptom appeared with incidence of 83.33%, Foul odor 73%, Discoloration 60%, Itching 20% and Redness 3.33%.

DISCUSSION

Discussion on therapeutic data of both groups

The present clinical study was conducted to evaluate the clinical effects of SSD Powder use in one group and SSD Spray in another group to see the comparative effect.

Table no. 4 showing the Inter group comparison of various symptoms of both group (Man Whitney test)

| Symptoms | Mean | | % Relief | | P | U | U' | Remarks |
|--------------------|---------|---------|------------|-----------------|--------|--------|--------|---------|
| | Group A | Group B | Mean Diff. | %Diff.of Relief | | | | |
| Excessive sweating | 1.47 | 1.27 | 0.2 | 13.60 | 0.1373 | 90 | 135 | NS |
| Redness | 1 | 0.74 | 0.26 | 26 | 0.1323 | 88 | 136 | NS |
| Itching | 1 | 0.87 | 0.13 | 13 | 0.3006 | 101.50 | 123.50 | NS |
| Discoloration | 0.8 | 0.67 | 0.13 | 16.25 | 0.2727 | 100 | 125 | NS |
| Foul odor | 1.53 | 1.6 | -0.07 | -4.57 | 0.3677 | 105 | 120 | NS |

Effect on Excessive sweating- Group A showed 13.60 % more relief than the Group B. The difference was statistically non significant.

Effect on Redness- Group A showed 26% more relief than the Group B. The difference was statistically non significant

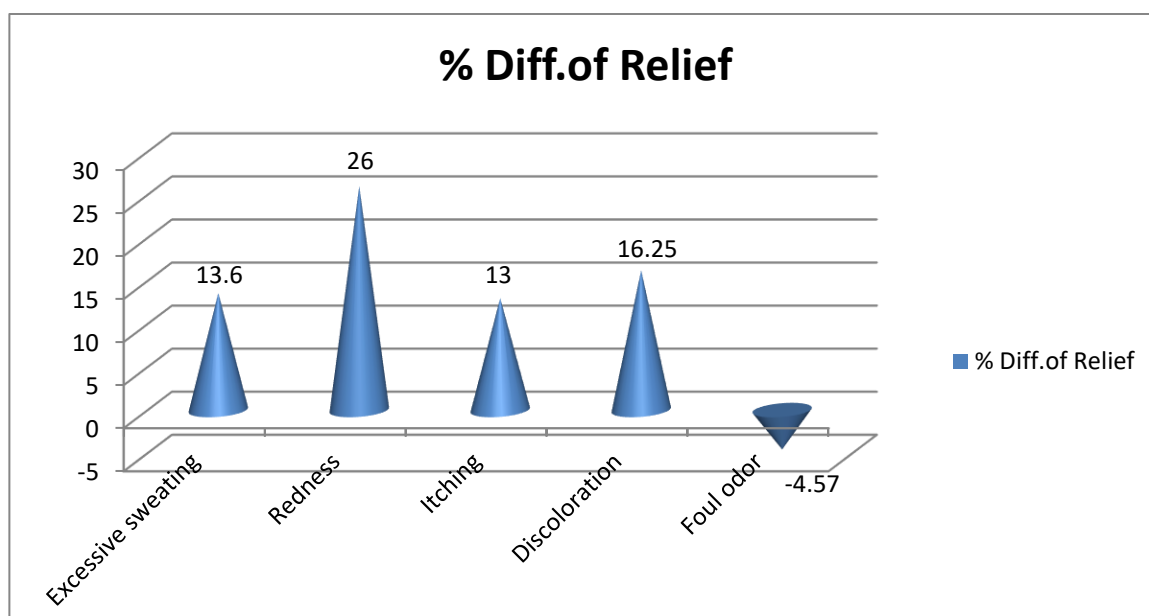
Effect on Itching- Group A showed 13% more relief than the Group B. The difference was statistically non significant

Effect on Discoloration- Group A showed 16.25% more relief than the Group B. The difference was statistically non significant.

Effect on Foul odor- Group B showed 4.57 more relief than the Group A. The difference was statistically non-significant

Table no. 5 Showing the % improvement of subjective parameters in Both Groups:

| S. NO | PARAMETERS | RESULT IN PERCENTAGE | |
|----------------------------|--------------------|----------------------|---------------|
| | | GROUP A | GROUP B |
| 1. | Excessive sweating | 52.5 | 46.52 |
| 2. | Redness | 57.80 | 46.25 |
| 3. | Itching | 75.18 | 50.28 |
| 4. | Discoloration | 43.01 | 41.87 |
| 5. | Foul odor | 67.69 | 61.53 |
| Average % of Relief | | 59.23% | 49.29% |



Overall assessment of therapy

Table no. 6 for assessment of overall improvement, following grading was used:

| S. NO | ASSESSMENT CRITERIA | GRADING |
|-------|----------------------|-----------------------------|
| 1. | Complete remission | 100 % relief in symptoms |
| 2. | Marked improvement | 75- 99 % relief in symptoms |
| 3. | Moderate improvement | 51 - 75% relief in symptoms |
| 4. | Mild improvement | 25- 50% relief in symptoms |
| 5. | Unchanged | 0- 25% relief in symptoms |

Table no. 7 showing overall assessment of effect of the therapy on patients of Both Groups:

| ASSESSMENT CRITERIA | GROUP A | | GROUP B | |
|---------------------|-----------------|----|-----------------|----|
| | No. of patients | % | No. of patients | % |
| Complete remission | 0 | 0 | 0 | 0 |
| Marked relief | 0 | 0 | 0 | 0 |
| Moderate | 4 | 80 | 1 | 20 |
| Mild | 1 | 20 | 4 | 80 |
| Unchanged | 0 | 0 | 0 | 0 |

In Group A- 0% of the volunteers were found with complete remission, 0% were found with marked improvement, 80% were found with moderate improvement, 20% were found with mild improvement and 0% were found unchanged.

In Group B- 0% of the volunteers were found with complete remission, 0% were found with marked improvement, 20% were found with moderate improvement, 80% were found with mild improvement and 0% was found unchanged.

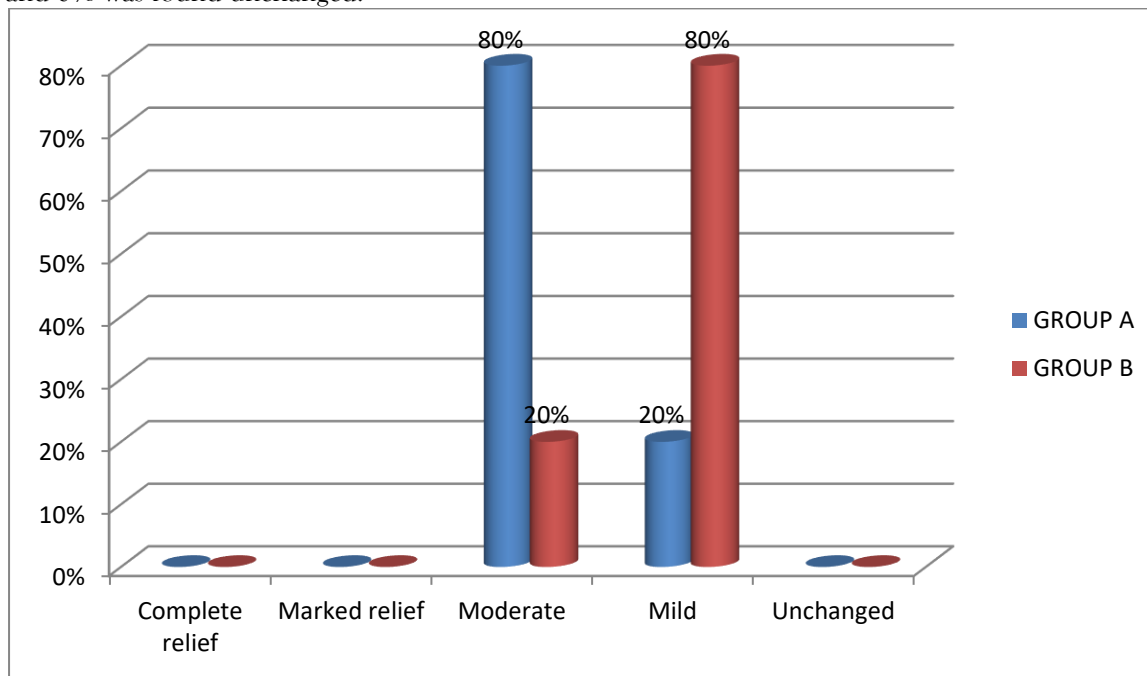


Table no.8 Showing the % improvement of subjective parameters in Both Groups:

| S. NO | PARAMETERS | RESULT IN PERCENTAGE | |
|----------------------------|--------------------|----------------------|---------------|
| | | GROUP A | GROUP B |
| 1. | Excessive sweating | 52.5 | 46.52 |
| 2. | Redness | 57.80 | 46.25 |
| 3. | Itching | 75.18 | 50.28 |
| 4. | Discoloration | 43.01 | 41.87 |
| 5. | Foul odor | 67.69 | 61.53 |
| Average % of Relief | | 59.23% | 49.29% |

Effect of Treatment-

The assessment of result was made by adopting the standard method of scoring, it includes assessment the symptoms of related to Swedadhikya like foul odor, itching, redness, discoloration. These symptoms were assessed statistically to see the significance. The subjective parameters were compared by Wilcoxon matched pairs signed- ranks test (intra group comparison) and Mann Whitney U test (inter group comparison).

Effect of therapy on Subjective parameters

Intra group study-

- After completion of treatment in Group A, extremely significant relief was observed in all eight subjective parameters and relief was 52.5% in Excessive sweating, 57.80% in Redness, 75.18% in Itching, 43.01% in Discoloration and 67.69% in Foul odor.
- After completion of treatment in Group B, extremely significant relief was observed in all eight subjective parameters and relief was 46.52% in Excessive sweating, 46.25% in Redness, 50.28% in Itching, 41.87% in Discoloration and 61.53% in Foul odor.

Inter group study-

- At the end of treatment, in eight symptoms there were not significant differences found in both groups. Whereas Group A showed 13.60%, 26%, 13%, 16.25% more relief than the Group-B in Excessive

sweating, Redness, Itching and Discoloration respectively. In symptoms of Foul odor, Group A showed 4.57% less relief respectively than the Group B

Overall assessment of effect of the therapy-

- In Group A maximum 80% were having moderate relief followed by 20% at mild relief and no patient were having complete relief, marked relief and unchanged relief.
- In Group B maximum 20% were having moderate relief followed by 80% at mild relief and no patient were having complete relief, marked relief and unchanged relief.

Overall effect of the therapy on Subjective Parameters

All the symptoms were found to be relieved to the maximum in Group A 59.23% followed by Group B 49.29%. These results prove that, the drug of Group A i.e. SSD Powder is more effective than the drug of Group B i.e. SSD Spray.

Discussion regarding probable Mode of action- Ayurvedic point of view

The principle of the disease treatment is Samprapti Vighatana, which means that the drug action of the medicinal preparation. The fundamentals of Ayurvedic drug action are scientific and based on the concepts of Rasa, Guna, Virya, Vipaka and Prabhava which were the simplest characteristics to determine the drug action in those days. Action of drug means to dismantle the disease's Samprapti Ghatakas. To understand a drug mode of action, one must first establish a relation between the disease's Samprapti Ghatakas and the drug's Rasa, Guna, Virya, Vipaka, and Prabhava effects.

Mode of action of SSD Yoga drugs by Rasa Panchaka-

Kashaya, Tikta & Madhur Rasa – Maximum drugs of SSD Yoga have Kashaya, Tikta, Madhura rasapradhan, due to madhura rasa, it helps in shaman of Pitta dosha. Tikta rasa helps to mitigates Pitta & Kaphadosha and it also has anti-bacterial property. Kashaya rasa means astringent absorbs excess moisture and stimulate absorption. It helps to alleviate the Pitta & Kapha dosha. Resulting drug of SSD Yoga having Vishaghna, Krimighna, Swedapanayana, Stambhana, Sweda Daurgandhyahara, Vishaghana, Twagdosahara Raktapittashamaka, Pitta-kapha-upshoshana actions thereby helps in Swedadhikya and Daurgandhya.

Laghu & Ruksha Guna – Maximum ingredients of SSD Yoga have Laghu and Ruksha property. Rukshaguna helps to subside the moisture.

Katu vipaka- Maximum ingredients of SSD Yoga have Katu vipaka, which helps to obstruct the excessive flow.

Sheetavirya- Maximum drugs having sheetavirya properties, so it helps to reduce excessive sweating.

Finally it may be assumed that the “SSD Yoga” cure Swedadhikya & Daurgandhya due to its Kashya, Tikta, Madhura rasa, Laghu, Rukshaguna, Katuvipaka, Sheetavirya and Pitta- Kaphashama properties.

Samprapti Ghataka –

1. Doshha – Smanavayu, Vyanavayu, Pachaka pitta, Kledakakapha
2. Dushya –Rasa, Rakta, Medo dhatu
3. Agni –Teekshna jatharagni, Rasadhatwagni and Medodhatvagni
4. Adhishthana – Kaksha
5. Srotasa – Swedavahasrotasa
6. Srotodushtiprakara – Atipravriti

Probable mode of action of Powder described on flow chart below:

Powder applied in the under arm region

Release active ingredients

Absorption of the sweat (due to it has absorbent quality)

Reduce sweat production, friction and mask odor



Probable mode of action of Anti- perspirant described on flow chart below:

Anti-perspirant apply in the under arm region

Release active ingredients



Dissolve in the sweat or moisture of the skin surface
↓
Creates a small temporary plug near the top of the sweat gland
(blocking the sweat ducts)
↓
Significantly reducing the amount of sweat
&
Help to fight sweat odor and inhibiting the bacteria

CONCLUSION

Swedadhikya is compared to Hyperhidrosis on the basis of their etiology, signs and symptoms. Swedadhikya is one of the Piita-Kaphaja vyadhi. Here Smanavayu, Vyanavayu, Pachaka pitta, Kledakakapha are involved. SSD Powder & SSD Spray, both formulations showed effect on Swedadhikya condition. Formulation of SSD Powder proved to be very good having all the properties required to break the Samprapti of Swedadhikya.

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