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Research Article

Ayursenso- Gel

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Standardization and Evaluation of Ayursenso- Gel : An Ayurvedic Formulation

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Introduction: The Ayurvedic medical system has recently gained significant propulsion in India's medical and healthcare sectors. To evaluate the quality, safety, and effectiveness of Ayurvedic medicines along with ensuring the standards and purity of herbal formulations are crucial. Nevertheless, pharmacopoeia testing is the required protocol for getting global acceptance. For the treatment of dental hypersensitivity this formulation was documented in the Ayurvedic classic Sharandhar Samhita and Gada Nighraha. This communication focuses on standardizing Ayursenso-Gel, an Ayurvedic compound formulation. The standardization and quality control of Ayurvedic formulations are imperative, safeguarding their quality, potency, purity, and authenticity. Present work deals with organoleptic properties, physio-chemical analysis, microbial limit test analysis, HPTLC test of Ayursenso-Gel. The manufactured medication has been standardized by adhering to the approved pharmacopeial protocol for the quality control procedures.

Results: All the parameters studied are within the limits and hence validate the safely and effectively use of gel. viz creamish color, semi solid liquid, odor pungent, taste bitter, feel-oily, Moisture Content @110°C - nil, pH value - 5.53, Acid Value - 3.16, Iodine Value - 8.3, Saponification Value - 23.7, Refractive Index - 1.472, Spread ability Test - 0.2142gm/cm2

Conclusion: On evaluation of the Ayursenso Gel and analyzing its organoleptic and physio-chemical property it is found that it meets all the standards of an ideal oral gel.

Keywords: Dental hypersensitivity, Ayursenso Gel, organoleptic, physio-chemical property, HPTLC

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Introduction

The World Health Organization (WHO) estimates that up to 80% of the population in some countries rely on herbal medicines for primary healthcare. This growing reliance underscores the need to better understand the efficacy, safety, and therapeutic mechanisms of herbal compounds. In recent years, there has been an increased global interest in non-synthetic natural drugs derived from plant sources due to their better tolerance and minimal adverse drug reactions.**[1]**

With roots in ancient traditions such as *Ayurveda*, Traditional Chinese Medicine, and Indigenous healing systems, herbal remedies continue to be widely used around the globe. In recent years, there has been a resurgence of interest in natural and plant-based therapies, driven by growing concerns over the side effects of synthetic drugs, antibiotic resistance, and the desire for more holistic approaches to health and wellness.

Dentine hypersensitivity (DHS) is one of the most commonly encountered dental problems. Prevalence rate of DHS among adults typically ranges from 3% to 57%, depending upon the population and diagnostic methods.**[2]** Toothpastes are the most widely used dentifrices for delivering over-the-counter desensitizing agents. The use of potassium nitrate as an effective desensitizing agent date back to the testimonial report of Hodosh in 1974.**[3]** Since then, many pastes *and gels* containing potassium chloride or potassium citrate have been made available. Recently Stannous fluoride is emerging as a promising agent for dentinal sensitivity control. These ingredients may cause adverse reactions if swallowed accidentally.**[4]**

Herbal product is authenticated and characterized at GMP Certified laboratory in order to ensure reproducibility in the processing of the formulation. In this background, drug analysis is an essential step for the establishment of consistent biological activity, a consistent chemical profile, or simply a quality assurance program for the production and manufacturing of an herbal drug.**[5]**

Our Ayursenso gel has 8 contents of *Kushtadi Yoga***[6]** *Kushtha* (*Sassurea Laapa)***[7]** *Darvi* (*Berberis Aristate)***[8]**, *Haridra* (*Curcumalonga)***[9]**, *Kutaki* (*Picrorrhiza Kurrora)***[10]**, *Musta* (*Cyperus Rotundas)***[11]**, *Lodhra* (*Symplocos Racemose)***[12]**, *Samanga* (*Rubia cordifolia)***[13]**, *Tejwaha* (*Zanthoxylum alatum)***[14]** along with *Trivrita Ghrita***[15]** used as a base for the gel formation.

Materials and Methods

All the drugs were procured from the Brahmanath Pharma Pvt. Ltd, a GMP Certified lab Dist. Ahmednagar Maharashtra in crude form and were identified by the same. Pharmacognostical authentication of all the raw drugs was done based on the morphological features, organoleptic characters.

Table 1: Contents of Ayursenso Gel

SN	Drug Name	Latin Name	Part Used	Proportion
1.	Kushtha	Sassurea laapa	Mool (root)	Equal proportion
2.	Darvi	Berberis aristate	Mool (root)	Equal proportion
3.	Haridra	Curcumalonga	Kanda (Stem)	Equal proportion
4.	Kutaki	Picrorrhiza kurrora	Mool (Root)	Equal proportion
5.	Musta	Cyperus rotundas	Kanda (Stem)	Equal proportion
6.	Lodhra	Symplocos racemose	Twak (bark)	Equal proportion
7.	Samanga	Rubia cordifolia	Mool (root)	Equal proportion
8.	Tejwaha	Zanthoxylum alatum	Bija (seeds)	Equal proportion

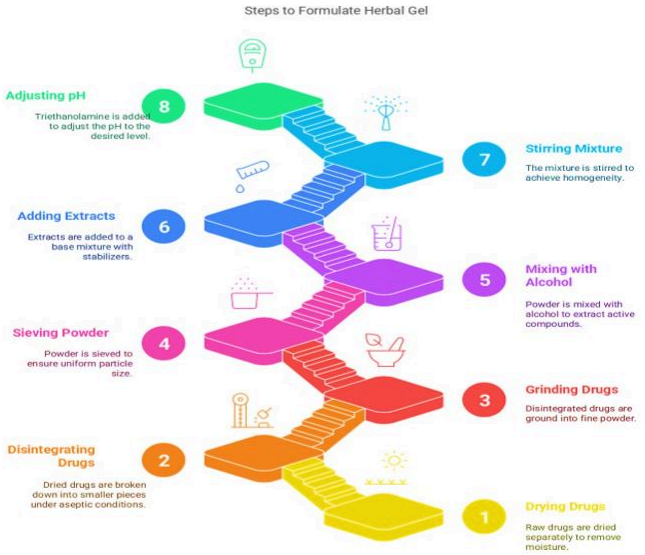
Process of formulation

All the raw drugs (25gms each) were dried separately in try dryer. The ingredients with the botanical source and parts used are mentioned above. Then dried drugs were disintegrated by the disintegrator separately in aseptic conditions.

After that all the disintegrated drugs were then ground by the pulverizer. Then all the ground drugs were made to pass through the sieve separately. Each powder was made to pass through the 85 number sieves to get a fine powder.

Each *Churna* was mixed with 5% alcohol and 8 extracts were recovered. These extracts were added with standardized *Trivruta Ghrita* and Carbopol 934 of 1% concentration (10gms) with the addition of sodium benzoate 6gms.

The mixture was kept for 6-7hrs to allow the dispersion of Carbopol. After with aid of mechanical stirrer, make a homogenous mixture with 1200 rpm to form gel aspect. Triethanolamine added drop by drop with continuous stirring until it gets converted into perfect desired gel and pH. Packaging and labelling of gel within tubes are done in sterilized conditions.



Analytical Study

Physio-analytical testing

Colour	creamish
Odour	Pungent
State	Semisolid
Feel	oily
Visual appearance	Translucent and Transparent
Homogeneity	Consistent
pH	6.98
Moisture Content @1110°C	nil
Acid Value	3.16
Iodine Value	8.3
Saponification Value	23.7
Refractive Index	1.472
Spread ability- Test	0.2142gm/cm2

Irritancy test - No Redness, No oedema, No inflammation and Irritation during Irritancy test.

HPTLC - High performance Thin Layer Chromatography (HPTLC) profile

Homogeneity

Homogeneity of standard oral gel is having uniform consistency without lumps, phase separation, or Air bubbles. Ayursenso gel found without lumps, phase separation, or Air bubbles which shows uniform consistency.**[16,17]**

PH determination

PH of Gel was performed by using Digital pH meter previously calibrated before each use with standard buffer solutions.

Normal range of pH of standard oral gel is between 5.5-7.0.**[18]**

Ayursenso gel pH is 6.98.

Spreadability

Both glass slides of apparatus were cleaned with alcohol and allowed to dry. 1g of gel was placed between the two glass slides. Then 100g of weight was placed on top slide for 5 minutes to compress the sample up to uniform thickness.

Initial weight (100g) was added in the pan. The weight in the pan was increased until the upward slide starts to move over stationary slide.

The time in seconds(s) require to separate the two slides was noted. The triplicate of each sample was taken and time required and distance travelled by slide was noted.**[19]**

On following the same procedure spread ability of Ayursenso gel is found 0.2142gm/cm2

Irritancy test

Mark an area of one square cm on the left-hand dorsal surface. The Sample gel was applied to the specified area and time was noted. On following the same procedure no Irritancy, erythema, oedema was observed.**[20]**

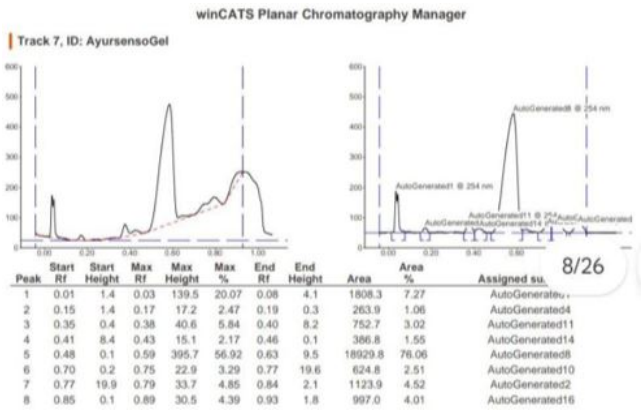
High performance Thin Layer Chromatography (HPTLC) profile

Initially sample solutions were prepared. Accurately weighed (250 mg) was taken in methanol and was filtered through Whatman I filter paper. The filtrate was further subjected to chromatographic separation.

The Solvent system used was Chloroform: Methanol (9:1 % v/v). 5 µl of sample solution was applied on pre-coated silica gel 60 F 254 TLC plate (E. Merck) of uniform thickness of 0.2 mm and the plate was developed in the solvent system up to a distance of 8 cm.

The plate was visualized under short and long UV radiation and density of the separated spots was recorded using scanner III. The Rf value of all the track at 254 nm, and 366 nm were recorded and presented respectively.

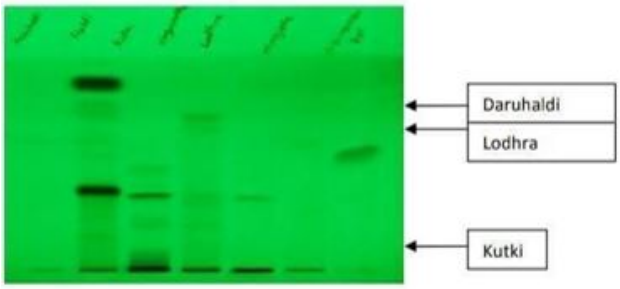
Peak display densitogram of samples under 254 nm, and 366 nm and comparative spectra at various Rf are placed in figure attached in.**[21,22]**



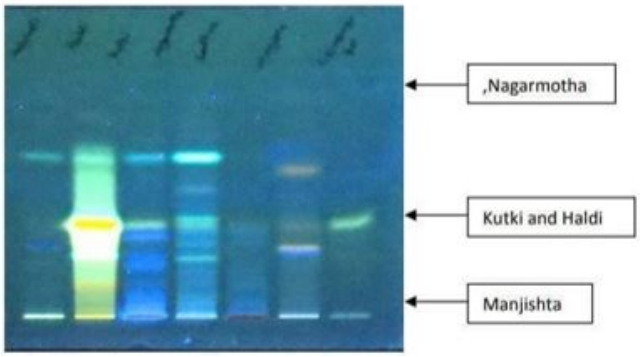
Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned su...
1	0.01	1.4	0.03	139.5	20.07	0.08	4.1	1808.3	7.27	AutoGenerated...
2	0.15	1.4	0.17	17.2	2.47	0.19	0.3	263.9	1.06	AutoGenerated4
3	0.35	0.4	0.38	40.6	5.84	0.40	8.2	752.7	3.02	AutoGenerated11
4	0.41	8.4	0.43	15.1	2.17	0.46	0.1	386.8	1.55	AutoGenerated14
5	0.48	0.1	0.59	395.7	56.92	0.63	9.5	18929.8	76.06	AutoGenerated8
6	0.70	0.2	0.75	22.9	3.29	0.77	19.6	624.8	2.51	AutoGenerated10
7	0.77	19.9	0.79	33.7	4.85	0.84	2.1	1123.9	4.52	AutoGenerated2
8	0.85	0.1	0.89	30.5	4.39	0.93	1.8	997.0	4.01	AutoGenerated16

Images of Chromatogram:

At 254nm



At 366 nm



Result

The evaluation indicates that Ayur Senso Gel matches the Standard oral Gel in both organoleptic and physicochemical parameters. These findings suggest that Ayur Senso Gel maintains quality and stability on par with established formulations. The equivalence in sensory and physical attributes supports its acceptability for consumer use and affirms its compliance with standard topical product specifications. From a formulation and quality standpoint, the results validate the Ayur Senso Gel as safe and standardized oral gel on comparison from the properties of Standard oral Gel. This equivalency supports further exploration of Ayur Senso Gel's therapeutic or functional claims,

Given that its base characteristics are consistent with those of a recognized standard. *Ayursenso gel* pharmacogenetic evaluation highlighted the unique qualities of this remedy. Numerous standardization parameters were used in this examination, including physical characteristics, physiochemical study, organoleptic study, and chromatographic evaluation.

The PH - 6.98, Moisture Content @110°C - nil, Acid Value - 3.16, Iodine Value - 8.3, Saponification Value - 23.7, Refractive Index - 1.472, Spreadability Test -0.2142gm/cm2. The formulation was free from pathogenic microbial contaminations.

Discussion

Comprehensive testing of Ayur Senso Gel was conducted in a GMP-certified laboratory to evaluate and compare their organoleptic and physicochemical properties. The analysis included color, odor, texture, pH, viscosity, spread ability, homogeneity and HPTLC.

Organoleptic Properties

The color of Ayursenso gel was consistent, with both products showing a uniform translucent appearance. Texture analysis revealed a smooth, non-gritty consistency in both formulations. The spread ability was evaluated by manual application, and both gels exhibited comparable ease of spreading and absorption into the skin without leaving residue.

Physicochemical Properties

The pH values of Ayur Senso Gel and Standard oral Gel were within the skin-friendly range (5.5-7.0.), showing no significant difference. Viscosity tests confirmed a similar gel consistency, ensuring ease of application and retention on the skin surface. Homogeneity tests further demonstrated that both products maintained a uniform distribution of active and inactive ingredients, with no signs of phase separation or granule formation over time.

Ayurvedic text Sharangadhar Samhita also affirm this by stating, "*Raktashruti Dantpida Shotham Daham Ch Nashyate*" for *Kusthadi Yoga*. From a modern scientific perspective, the chemical constituents of the Ayursenso gel components exhibit anti-inflammatory, antimicrobial, analgesic, antioxidant properties. These properties help address the fundamental pathology of dental hypersensitivity.

The obtained values of all tests are found within normal limits which indicate good quality of Ayursenso Gel. Hence all organoleptic and physicochemical properties like color, odor, texture, pH, viscosity, spread ability, homogeneity and HPTLC of Ayursenso gel meets the standard of the ideal oral gel for invitro and invivo use.

Conclusion

After evaluating Ayur Senso gel through various parameters like Organoleptic and physicochemical properties , *HPTLC* fingerprint profiles it is observed that it meets the quality of ideal oral gel. The data generated demonstrates the genuineness, purity, and safety of the finished product, making it a ideal product for oral use after following all the standard protocols. . Hence it is safe and meets the standard for in-vivo and in-vitro use.

References

1. Kimmatkar N, Thawani V, Hingorani L, Khiyani R. Efficacy and tolerability of Boswellia serrata extract in treatment of osteoarthritis of knee: a randomized double blind placebo controlled trial. Phytomedicine. 2003;10:3–7. *[Crossref][PubMed][Google Scholar]*

2. Addy M. Dentine hypersensitivity: definition, prevalence, distribution and aetiology. In: Addy M, Embery G, Edgar WM, Orchardson R, editors. Dentine Hypersensitivity. *2nd ed. London: Martin Dunitz; 2000 [Crossref][PubMed][Google Scholar]*

3. Hodosh M. Potassium nitrate dentifrice for desensitizing teeth. J Am Dent Assoc. 1974;89(3):692–5. *[Crossref][PubMed][Google Scholar]*

4. McMahon FG, Ryan JR, Akdamar K, Ertan A. Effect of potassium chloride supplements on upper gastrointestinal mucosa. Clin Pharmacol Ther. 1984;35(6):852–5. *doi:10.1038/clpt.1984.124. PMID: 6734038 [Crossref][PubMed][Google Scholar]*

5. Sharma P. Dravyaguna Vigyana. Vrishabhadi Varga, Daha Prashmana Varga, Rasayana Varga, Kasahara Varga, Dipaniyadi Varga, Krimighana Varga. Varanasi: Chakhamba Bharti Academy; 2011. *p. 119–798 [Crossref][PubMed][Google Scholar]*

6. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

7. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

8. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

9. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

10. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

11. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

12. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

13. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

14. Sharngadhara Samhita. Uttara Khanda Kushtachikitsa Adhyaya. Commentary by Srikantha Murthy KR. Varanasi: Chaukhambha Orientalia. *[Crossref][PubMed][Google Scholar]*

15. Shodhala. Gadanigraha. Edited by Yadavji Trikamji Acharya. Varanasi: Chaukhambha Sanskrit Series Office. *[Crossref][PubMed][Google Scholar]*

16. Formulation and evaluation of oral gels. Int J Pharm Pharm Sci. . . *[Crossref][PubMed][Google Scholar]*

17. Aulton ME. Aulton’s Pharmaceutics: The Design and Manufacture of Medicines. 5th ed. . *[Crossref][PubMed][Google Scholar]*

18. United States Pharmacopeia. General Chapter. <791> pH. . *[Crossref][PubMed][Google Scholar]*

19. Lachman L, Lieberman HA. The Theory and Practice of Industrial Pharmacy. 3rd ed. . *[Crossref][PubMed][Google Scholar]*

20. International Council for Harmonisation (ICH). Guideline M3(R2). Safety Testing. . *[Crossref][PubMed][Google Scholar]*

21. Sethi PD. HPTLC. Quantitative Analysis of Pharmaceutical Formulations. . *[Crossref][PubMed][Google Scholar]*

22. Indian Pharmacopoeia. General Chapter on HPTLC. Appendix 3. 20. *[Crossref][PubMed][Google Scholar]*

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