ISSN- 2350-0530(O), ISSN- 2394-3629(P)
DOI: 10.5281/zenodo.3401611

INTERNATIONAL JOURNAL OF RESEARCH – GRANTHAALAYAH
A knowledge Repository

Science

A PREPARATION AND PHARMACEUTICAL STANDARDISATION OF SURANADI KHAND (GRANULE) - A MODIFIED FORM OF SURANADI AVALEHA

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Abstract

Ayurveda is a science of life. It is mainly based on the Trisutra, Hetu, Linga and Aushadhi. Among these Aushadhi plays a major role in the treatment. The standardization of herbal formulations and neutraceuticals, a thoughtful knowledge of the important herbs found in India Suranadi Khand (Granules) is a Avaleha preparation & is explained in Sharangadhar samhita. which is used in the Arsha, Mandaagni, Pleehagulma, Shwas, Kasa, Ashtila. In modern era more importance is given for the feasibility, palatability, minimum dose, easy administration, increased bioavailability and shelf life of a formulation. Hence the present study highlights the Preparation and Pharmaceutical Standardization of Suranadi Khand (Granules)- A Modified Dosage form as Suranadi Avaleha.

Keywords: Suranadi Khanda; Pharmaceutico-Analytical Standardization; Surnadi Avaleha.

Cite This Article: Dr. Sneha Diliprao Lambat, Dr. Mahantesh B. Rudrapuri, and Dr. G. Vinay Mohan. (2019). "A PREPARATION AND PHARMACEUTICAL STANDARDISATION OF SURANADI KHAND (GRANULE) - A MODIFIED FORM OF SURANADI AVALEHA." *International Journal of Research - Granthaalayah*, 7(8), 463-469. https://doi.org/10.5281/zenodo.3401611.

1. Introduction

Bhaishajya is the one among *Chikitsa Chatuspada*, without which the suppression of disease is not possible. *Bhaishajya* is the weapon offered by *Ayurved* to conquer the overspreading deadly diseases.(1) *Acharya Charak* has mentioned *Panchavidhakashay Kalpana* i.e. *swarasa*, *kalka*, *kwath*, *hima*, *fant*(2) In the same sequence *Acharya* have mentioned different formulations with the same herbs according to their efficacy, dose and palatability etc. But there are some demerits of these formulations too e.g. large amount of dose, less shelf life etc.

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In today's era more importance is given for the feasibility, palatability, minimum dose, easy administration, increased bioavailability and shelf life of a formulation. *Avaleha* or *Leha* is a semisolid preparation of drugs, prepared with addition of jaggary, sugar, and boiled with prescribed drug juice or decoction. [3] The definition of *awaleha* is ***"kwathadina punh: pakat kathyate sa rasakriya so avlehach"*** is mentioned in the *sharangdhara samhita madhyam khanda*. *Suranadi Avaleha kalpna* is explained in text of *Sharangdhar Samhita*,[4] *Ashtang Hridayam*.[5] Which is indicated for enhancement of *Arsha*, *Mandaagni*, *Pleehagulma*, *Shwas*, *Kasa*, *Ashtila*. *Suranadi Avaleha* will be prepared by using the ingredients *Suran*, *Dhanyaka*, *Pippali*, *Twak*, *Ela*, *Patra*, *Marica*, *Sunthi*, *Khanda*, *Go-ghrita*, *Madhu*.

There is number of classical formulations available for protective as well curative purpose of disease such as *Arsha*, *Mandagni*. As per the need of time we have to modified the *Suranadi Avleha* to suitable forms,Converting it to granules form will ensure its palpability, ease of handling and comfortable for use. No studies have been carried out on this drug yet. Hence the present study planned to evaluate 'Preparation and Pharmaceutical Standardization of *Suranadi Khand* (Granules)- A Modified Dosage form as *Suranadi Avaleha'*

2. Materials and Methods

Materials

Table 1: Contains of Suranadi Awaleha and their Properties

No	Dravya	Rasa	Virya	Vipak	Guna
1	*Suran*[6]	*Katu, Kashaya*	*Ushna*	*Katu*	*Laghu, Ruksha Vishada*
2	*Go-ghrita*	*Madhura*	*Sheet*	*Madhura*	*Singdha, Mrudu*
3	*Sharkara*	*Madhura*	*Sheet*	*Madhura*	*Guru, Snigdha*
4	*Pippali*[7]	*Katu*	*Ushna*	*Katu*	*Laghu, Snigdha*
5	*Sunthi*[8]	*Katu*	*Ushna*	*Madhura*	*Laghu, Snigdha*
6	*Jiraka*[9]	*Katu*	*Ushna*	*Katu*	*Laghu, Tikshna*
7	*Dhanyaka*[10]	*Kashaya, Katu Tikta*	*Ushna*	*Madhura*	*Laghu, Snigdha*
8	*Tejapatra*[11]	*Katu*	*Ushna*	*Katu*	*Tiksna, Laghu*
9	*Ela* [12]	*Katu, Madhura*	*Sheet*	*Katu*	*Laghu ,Ruksha*
10	*Maricha*[13]	*Katu*	*Ushna*	*Katu*	*Laghu, Tikshna*
11	*Twak*[14]	*Katu, Tikta*	*Ushna*	*Katu*	*Laghu, Ruksha, Tiksna*
12	*Madhu*	*Madhura,Kashaya*	*Sita,*	*Katu*	*Laghu, Yogavahi*

Table 2: shows drawys scientific name,part used and quantity

Dravya	**Scientific Name**	**Part used**	**quantity**
Suran	*Amorphophallus campanulatus (Roxb)*	*Fruit*	*100 pal*
Goghrut	*Butyrumdepartum*		*8 pala*
Sharkara	*Sugar*		*400pala*
Pippali	*Piper longum Linn*	*Seed*	*2 pala*
Sunthi	*Zingiber officinale*	*Rhizome*	*2 pala*
Jirak	*Cuminum cyminum Linn*	*Fruit*	*2 pal*
Dhanyaka	*Coriander sativa*	*Fruit*	*Half pal*

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Tejpatra	*Cinnamommtama*	*Leaf*	*Half pal*
Ela	*Elettaria cardamoummaton*	*Seed*	*Half pal*
Maricha	*Piper nigrum Linn*	*Fruit*	*Half pal*
Twak	*Cinnamomum zeylanicumblume*	*Bark*	*Half pal*
Madhu	*Honey*		*Qua. Req*

Methods

1) *Avaleha* Preparation [15]

- Fresh *Surana* and other ingredients was collected and cleaned
- (To remove foreign matter)
- Kept in clean steel vessel
- Surana was peeled, Cut into small piece
- Distilled water in quantity double to Surana and was heated on Mandagni
- When Surana pieces becomes soft, were mashed to paste
- Paste was fired in *ghee* on *Mandagni* till it turned to brown
- Sugar four times quantity to that of paste were added in the water and boiled till *paka* attains *Aapsumajjati, Tantumatwa*
- Fried paste were added to the *paka*
- It will be mixed vigorously& stirred continuously till the *Avaleha* attends *Siddha Lakshan*.
- When it becomes *Swanga shita*, honey will be added in requierd quantity to prepared *suran avaleha*

2) Granules Preparation

- Prepared *Avaleha* was taken
- When it becomes *Swangasita*, add *prakshep dravya* and honey was added in required quantity and stirred again to prepared Suran *Khanda* (Granule)

Pharmaceutical Study of Suranadi Khand

Suranadi Khand (Granules**)** is a *Avaleha* preparation & is explained in Sharangadhar samhita. This was prepared by using drugs like *Surana, Ghrita, Sharkara, Pippali, Sunti Dhanyak, Twak, Jeerak* & *Madhu*. The drugs were taken in appropriate quantity as shown in the Table no 2. Mandagni (mild fire) was applied to perform *Avaleha* preparation. *Kalpa Siddhi* Pareeksha were observed clearly. The temperature recorded at this stage was 65-70^{o}c. then after cooling honey was added to the mixture & mixed uniformely. The temparaure recorded at this stage was 35^{o}c. after uniform mixing the whole mixure was converted in to homogeneous blende. This blende was taken for Granule preparation with help of mesh no 40#. *Suranadi khand* granules were prepared in 3 sample & were analyzed separately. Physico chemical parameters of the individual drugs (Table no 5) and *Suranad khand* granules (Table no 6) were suggestive of the quality and increased shelf life.

Physico-Chemical Study of 3 Samples of Suranadi Khand Granules:

Organoleptic Characteristics

Organoleptic properties are mentioned in the table no 6. The developed formulation was Light yellow colored, characteristic odor, semisolid in consistency in the samples of SK granules 1 & 2.

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But In the sample SK granules 3 had light yellowish in color. The remaining observations were similar to sample 1& 2.

Loss on Drying
Moisture content of sample Suranadi Khand Granules 1,2,3 was found 1.39%, 1.39%, S& 1.37% respectively (Table no 6). It indicates moisture content. Low moisture content is desirable for higher stability of the formulation.

Ash Value
Ash value of sample *Suranadi Khand* Granules 1,2,3 was found 2.97 %, 2.37% & 2.35% respectively (Table no 6). This value was found to be reasonably low, which indicates low contamination. It is criteria for indentifying the purity of the drugs. Total ash is inclusive of extraneous matter such as sand, soil etc adhering to the herbal drug.

Water Soluble Ash
Water soluble Ash of sample *Suranadi Khand* Granules 1,2,3 was found 0.59 %, 0.57 %
0.55% (Table no 6) respectively. This shows normal quality of the drugs of the *Suranadi Khand* (Granules 1,2,3**)** and presence of more active principle in the sample.

Acid Insoluble Ash
Acid insoluble ash of sample Suranadi Khand Granules 1,2,3 was found 0.53 %, 0.63 % 0.53 % respectively (Table no 6). This shows indicative of very less amount of non-physiological components like silica, less adherent dirt and sand particles of the Suranadi Khand Granules.

The Water-Soluble Extractive
sample of Suranadi *Khand* Granules 1,2,3 were found to be 67.15%, 67.13%, 67.09% respectively and

Alcohol Soluble Extractive
sample of *Suranadi Khand* Granules 1,2,3 were found to be 53.37%, 53.39%, 53.49% respectively, indicating considerable amount of polar compounds in the sample.

Ph Value
pH of *Suranna khand* Granules (1,2,3) was 6, which is a weak basic. This indicates granules is gastric friendly, does not cause harm to the gastric mucosa and maintains integrity of gastric mucosa.

This has shown acidic nature of formulation, due to the reason of use of hanoey & other ingradients in Paak process.

Total Sugar of *Suranna khand* Granules (1,2,3) was found to be in the range of 41.68 %, 41.68 %, 414.66 % (Table no 7) respectively, suggested that considerable amount of Sugar in the sample, as well exhibits solubility of the manufactured product and nutritional value in terms of carbohydrate.

Reducing Sugar of *Suranna khand* Granules (1,2,3) was present respectively (Table no 7)[50].

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Total Solid Content of Suranna khand Granules (1,2,3) was found 0.26 gm (table no 7), which in turn shows low moisture content, important factor for longer stability period.

The total fat of *Suranna khand* Granules (1,2,3) was found to be 0.21 gm, 0.21 gm, 0.20 gm (Table no 7) respectively. As SK granules is also used for giving energy, it is expected to be high in Calorific Value.

Total Acidity was found to be 0.12 %, 0.12%, 0.13 % (Table no67) shows within the limit.

TLC (Table no 5) reveals the presence of presence of Phyto constituents in the individual ingredients.

HPTLC study was performed to get finer results (Table no 6) to get finer details. Analysis of the data obtained from the analytical study suggests that the parameters will be useful for standardization of Suranadi khand Granules.

3. Results

The results were assessed in following sections. Granular form of Suranadi Khand was subjected to Physico chemical analysis. The results are tabulated in following tables.

Table 5: Physico chemical analysis of raw drugs

Test Parameters Results obtained in %									
Ingredients	**Color**	**Odor**	**Moisture content**	**Total Ash**	**Water soluble ash**	**Acid in soluble ash**	**Water soluble extractives**	**Alcohol Soluble Extractives**	**TLC**
Sharkara	White	Charactestics	2.65 %	2.02 %	1.37 %	0.19	39.10	34.06	0.11
Pippali	black	aromatic	2.01	2.74	1.94	0.51	28.83	31.29	0.69
Sunti	Light yellow	aromatic	3.37	3.12	1.96	0.81	39.94	41.83	0.02
Jeerak	Light brown	aromatic	1.02	2.72	1.97	0.12	43.60	39.12	0.49
Dhanyak	Light yellow	Aromatic	1.39	2.09	1.65	0.28	53.75	61.63	0.53
Tejapatra	Greenish	Aromatic	1.48	1.20	0.99	0.12	39.26	47.17	0.11
Ela	greenish	aromatic	2.83	4.91	1.45	0.12	28.93	37.18	0.35
Mareech	black	aromatic	1.37	3.18	2.95	0.51	28.45	32.90	0.55
Twak	Light brown	Aromatic	1.48	3.37	2.01	0.5	42.84	36.93	0.17

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3 samples of Suranadi Khand Granules was subjected to Physico chemical analysis.The results are tabulated in following tables.

Table 6: Physio chemical analysis of 3 sample of Suranadi Khand Granules

Sr No	Test Parameter	Test Results Obtained (%)		
		SK Granules 1	SK Granules 2	SK Granules 3
1	Color	Light Yellow	Light Yellow	Light Yellowish
2	Odor	Characteristics	Characteristics	Characteristics
3	Loss on drying at 105oc	1.39 %	1.39 %	1.37 %
4	Ash value	2.97 %	2.37 %	2.35 %
5	Water soluble ash	0.59%	0.57%	0.55%
6	Acid insoluble ash	0.53%	0.63%	0.53%
7	Water soluble extractives	67.15%	67.13%	67.09%
8	Alcohol-Soluble Extractives	53.37%	53.39%	53.49%
9	pH	6	6	6
10	Total Acidity	0.12	0.12	0.13%
11	HPTLC	0.19	0.19	0.19

4. Discussion

Preparation & Pharmaceutical Standardization of Suranadi Khand (Granules)- A modified dosage form of Suranadi Avaleha was taken in this study. Samples selected for the study shows that analytical standards were in accordance with API standards.

Physico chemical parameters of the individual drugs and Suranadi Khand (Granules) were suggestive of the quality and increased shelf life. Parameters results of Powered drugs were as per the guidelines of Ayurvedic pharmacopoeia of India.

5. Conclusion

The analytical parameters were within the parameters mentioned in the API and were suggestive of the genuine of the raw material used and the quality of the end product obtained. The data obtained from Analytical parameters of Suranadi Khand (Granules) can be considered as reference for its standardization.

The Physico chemical parameters such as loss on drying, Total Ash value, water soluble ash, acid insoluble ash, pH, Alcohol soluble extractives, Water soluble extracives, , Acid insoluble ash, Water soluble a sh, TLC, Total Acidity, Total Solid Content, Fat Content, Reducing Sugar, Total Sugar,, HPTLC and Organoleptic characteristics can be efficiently used for standardization of Suranadi Khand Granules.

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