

“A comparative pharmaceutico-analytical study of Talisadi Churna prepared by classical method and variant prepared by replacing Sharkara using Stevia rebaudiana

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Abstract

Talisadi churna is one of widely used effective formulation frequently prescribed in cough. It has *Talisapatra, Shunti, Pippali, Maricha, Vamshalochana, Ela, Twak and Sharkara* as ingredients. In *Talisadi churna* proportion of *Sharkara* is twice to that of rest of ingredients. Sugar can contribute to our health in a good way, however, if abused it can cause serious health issues. Today, we are searching for better alternatives to chemical based artificial sweeteners. Some natural and artificial sugar substitutes are available in market. *Stevia rebaudiana* is natural alternative to sugar. Studies suggest that it does not raise blood sugar level, making safe for people with diabetes. This article evaluate analytical and pharmaceutical study of *Talisadi Churna* prepared by replacing *Sharkara* by *Stevia rebaudiana*.

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Introduction

Ayurveda is a traditional healthcare system of Indian medicine since ancient times. The several ayurvedic medicine have been developed, practiced in Ayurveda since ancient times to modern practices. Ayurveda deals with several classical formulations like Kashaya, Vati, Churna, Ariista, Asava, Arka etc. Ayurveda is not stagnant science. It was developing throughout its history. Ayurveda interacted with various systems from time to time this interaction has also facilitated its growth. Any science including Ayurveda has been formulated through generation of observation, evaluation and experimentation and experiences. So as to withstand with challenges of time there are some need for changes in the system of medicine without altering fundamental principles. In the era of wisdom and technology ayurvedic medicines can flourish globally with some modifications. *Talisadi churna* is one of widely used effective formulation frequently prescribed in cough. It has *talisapatra, shunti, pippali, maricha, vamshalochana, ela, twak and sharkara* as ingredients¹. In *Talisadi churna* proportion

of sharkara is twice to that of rest of ingredients². In recent changes in burden of disease incidence of type 2 diabetes mellitus has resulted in increased attention. Globally type 2 diabetes mellitus considered as common disease. Dietary habits are major factor for rising incidence and risk factor associated with diabetes mellitus³. Among them sugar consumption is important. There are many different types of sugar and it is used in almost everything we consume. Artificial sugars are on the rise, but these contain chemicals that may not be good for us. Ayurveda has holistic approach towards medicine. Even though usage of refined sugar which is having high caloric content in commonly prescribing formulations is difficult to prescribe among type 2 diabetes mellitus patients.

Sugar can contribute to our health in a good way, however, if abused it can cause serious health issues such as: diabetes, obesity, unhealthy looking skin, arthritis, and hyper activity in children. These sugars along with contributing calories remain as risk factor for chronic diseases such as hypertension, cardiovascular disease⁴.

Today, we are searching for better alternatives to chemical based artificial sweeteners such as Stevia. In the end, our society needs to lower our intake of sugar in order to better our health. Stevia rebaudiana is natural alternative to sugar. Studies suggest that it does not raise blood sugar level, making safe for people with diabetes⁵. Traditionally stevia plant leaves were used to sweeten beverages & medicine since more than 1500 years by Guarani people of South America⁶. Stevia leaf contains natural sweet compound steviol glycoside with relative sweetness of 30 times of refined sugar⁷. FSSAI has issued approval for stevia as sweetener⁸. Pure stevia is considered as GRAS by USFDA⁹.

Objectives

1. To prepare Talisadi churna by classical method and by replacing sharkara using stevia rebaudiana.
2. To analyze the compounds physico-chemically and to evaluate shelf life.

Materials and Methods

Materials

| SL.NO | DRUG NAME | RASA | GUNA | VEERYA | VIPAKA |
|-------|-------------------|----------------------|-----------------|--------|--------|
| 1 | Talishapatra | Katu | Laghu | Ushna | Katu |
| 2 | Maricha | Katu | Laghu, Tikshana | Ushna | Katu |
| 3 | Sunthi | Katu | Laghu, Tikshana | Ushna | Katu |
| 4 | Pippali | Katu | Laghu, Tikshana | Ushna | Katu |
| 5 | Vamshalochna | Madura | Laghu, Ruksha | Sheet | Madura |
| 6 | Ela | Katu, Madura | Laghu, Ruksha | Sheet | Katu |
| 7 | Twak | Katu, Tikta, Madhura | Laghu, Ruksha | Ushna | Madura |
| 8 | KhandaSarkara | Madhura | Laghu | Sheet | Madura |
| 9 | Stevia rebaudiana | Madhura | - | - | - |

Dravya scientific name part used and Proportion

| SL.NO | DRAVYA | SCIENTIFIC NAME | PART TO BE USED | PROPORTION |
|-------|--------------|----------------------------|-----------------|-----------------|
| 1 | Talishapatra | Abies webbiana Lindl | Leaf | 1 Karsa / 12 gm |
| 2 | Maricha | Piper nigrum Linn. | Fruit | 2 Karsa / 24 gm |
| 3 | Sunthi | Zingiber officinale Roscoe | Rhizon | 3 Karsa / 36 gm |
| 4 | Pippali | Piper longum Linn | Fruit | 4 Karsa / 48 gm |

| | | | | |
|---|-----------------------|----------------------------|--------|-------------------|
| 5 | Vamshalochna | Bambusa arundinaceae | | 5 Karsa / 60 gm |
| 6 | Ela | Elettaria cardamomummaton | Seed | ½ Karsa / 6 gm |
| 7 | Twak | Cinnamomum zeylanicumblume | Bark | ½ Karsa / 6 gm |
| 8 | Khanda Sarkara | | | 32 Karsa / 384 gm |
| 9 | or Steivia rebaudiana | Steivia rebaudiana | Leaves | 8 Karsh / 96 gm |

Methods

- Preparation of *Talisadi churna* as per *Sharangadhara samhita* (Compound A)
- Preparation of *Talisadi churna* by replacing *sharkara* using *stevia rebaudiana* (Compound B)

Preparation of Talisadi Churna (Classical method)

1. All the ingredient or drug of the Talisadi churna i.e. Talispatra – 1 part (12 gm), Maricha 2 parts (24 gm), Sunthi 3 parts (36 gm), Pippali 4 parts (48 gm), Vamsalochana – 5 parts (60 gm), Ela – 1/2 parts (6gm), Twak – 1/2 part (6 gm) and Sarkra 32 parts (384 gm) are taken separately.
2. Pounded well in Ulukhala yantra (pounding machine) and sieved.
3. Sieved churna is then filtered through a clean cotton cloth.
4. Mixed all the ingredients or drugs to form a homogenous mixture.
5. The homogenous mixture of Talisadi churna is taken in a air tight container.

Preparation of Talisadi churna with Stevia rebaudiana as an alternate to sugar.

1. Talisadi churna is prepared according to the ratio mentioned in the ingredients list. In this case, sugar is replaced by Stevia leaves powder 96 gm.
- In order to check the stability analytical parameters are studied after 2 months and 1 year of preparation of compound.

Results

Organoleptic study of Talisadi churna:

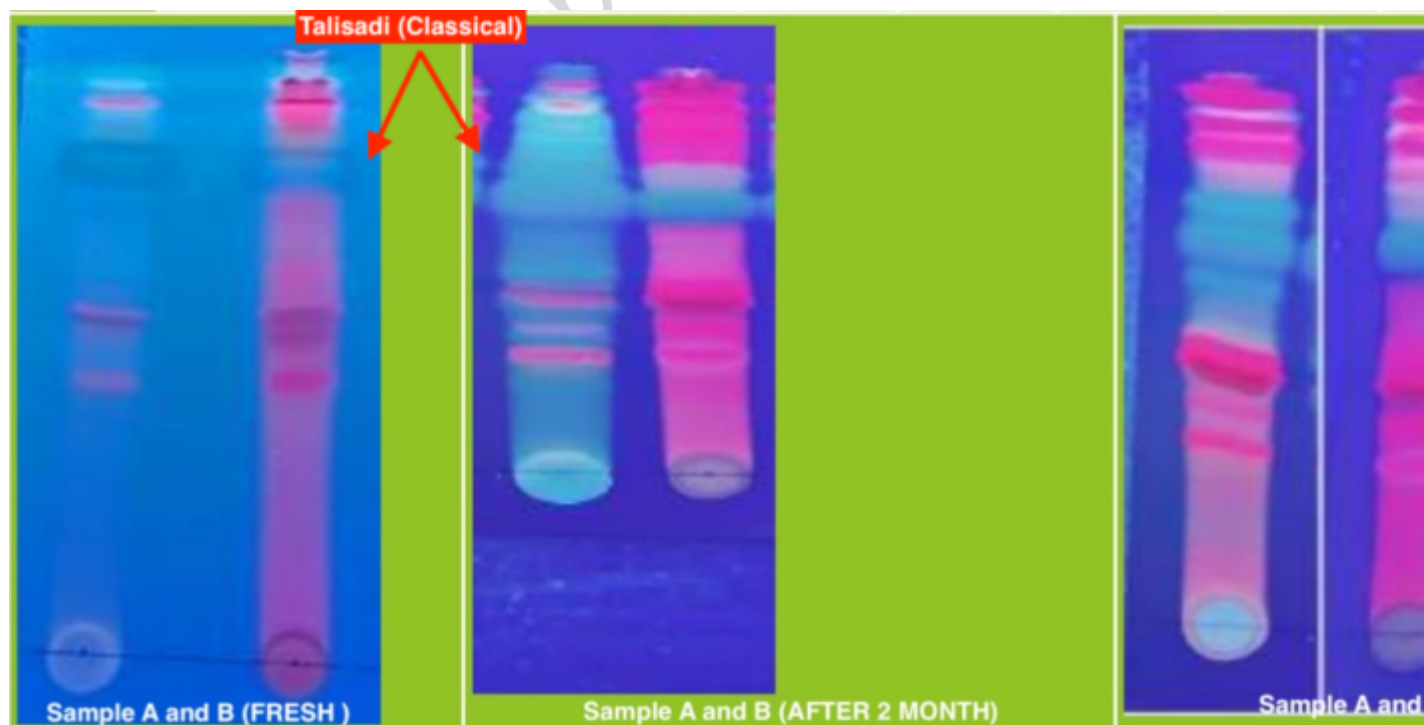
| PARAMETERS | TALISADI CHURNA | | | |
|------------------------|-----------------|--------------------|----------------|-------|
| | Colour | Odour | Taste | Touch |
| 0 day | Creamish White | Pleasant, Aromatic | Sweet, Pungent | Fine |
| 2 nd Month | Creamish White | Pleasant, Aromatic | Sweet, Pungent | Fine |
| 12 th Month | Brownish White | Pleasant | Sweet, Pungent | Fine |

Organoleptic study of Talisadi churna with stevia rebaudiana

| PARAMETERS | TALISADI CHURNA | | | |
|------------------------|-----------------|--------------------|----------------|-------|
| | Colour | Odour | Taste | Touch |
| 0 Day | Greenish White | Pleasant, Aromatic | Sweet, Pungent | Fine |
| 2 nd Month | Greenish White | Pleasant, Aromatic | Sweet, Pungent | Fine |
| 12 th Month | Greenish White | Pleasant | Sweet, Pungent | Fine |

Observations and Results -ANALYTICAL RESULT

| Sl.No | Parameters | Talisadi Churna | | Talisadi Churna With stevia rebaudiana | | | | | |
|--|--------------------------------|-----------------------|---------------|--|--------------|---------------------|---------------|--------------------------|--------------|
| | | Initial | After 2 month | Initial | After 1 year | Initial | After 2 month | Initial | After 1 year |
| 1 | Loss on Drying (%) | 2.3% | 4.23% | 2.30% | 9.7% | 6.59% | 7.8% | 5.20% | 8% |
| 2 | Total Ash (%) | 11.30% | 10.24% | 10.80% | 9.48% | 22.56% | 21.40% | 25.30% | 20.70% |
| 3 | Acid-insoluble Ash (%) | 9.3% | 9.29% | 9.28% | 9.12% | 18% | 18% | 21.64% | 17.97% |
| 4 | Water-soluble extractive (%) | 71.84% | 69.04% | 67.52% | 63.92% | 21.68% | 19.04% | 17.84% | 16.08% |
| 5 | Alcohol-soluble extractive (%) | 4.00% | 4.48% | 2.48% | 6.48% | 10.56% | 8.64% | 7.68% | 8.0% |
| 6 | pH | 8.5 | 5.74 | 7.76 | 5.28 | 7 | 6.03 | 7 | 5.83 |
| R _f VALUE | | | | | | | | | |
| SAMPLE | | Initial | | After 2 month | | Initial | | After 1 year | |
| Talisadi Churna | | 0.44,0.54, 0.755,0.88 | | 0.266,0.3,0.38, 0.56,0.58,0.67 | | 0.31,0.41,0.62,0.88 | | 0.28,0.3,0.41, 0.62,0.88 | |
| Talisadi Churna with stevia rebaudiana | | 0.44,0.54, 0.755,0.88 | | 0.266,0.38, 0.58,0.67 | | 0.31,0.41,0.62,0.88 | | 0.28,0.41, 0.62,0.88 | |



Discussion on Talisadi Churna:

Talisadi Churna is a compound herbal formulation extensively used in disorders of upper respiratory tract and Gastro-intestinal tract. It is also indicated in diseases like Kasa, Swasa, Jwara, Vamana, Atisara, Shosha, Admana, Pleea, Grahani and Pandu Roga. The drug Talisadi Churna has been mentioned first by Acharya Charaka in the Chikitsa Sthana, Adhyaya ¹⁰ i.e.

Rajyakshma Chikitsa and one of the important Churna explained in Sharangadhara Madhyama

Khanda. This formulation made with the ingredients Talisa Patra, Maricha, Shunti, Pippali, Ela, Twak, Vamshalochana, and Sharkara. It has more Teekshna and Ushna Dravyas like Talisa Patra, Maricha and Shunti. These are added here for the treatment of Ama Lakshana like Arochaka and Agnimandhya. To balance the Lekhana action of the Teekshna Dravya the practice of adding Vamshalochana was probably started. According to some authors the word Shubha in the context of Talisadi Churna indicates Vamshalochana because of its white colour. But Chakrapani Teekha says it denotes a good quality of Pippali. Here for the preparation of Talisadi Churna the reference of ingredients and proportion is taken from Sharangadhara Samhitha. Since Talisadi Churna is also having good effect on Kasa and Swasa, in later time it became a popular Yoga in the treatment of respiratory tract diseases.

In today's world we find increased case of Kasa, which may get prolonged and lead on to serious complications. So the disease Kasa was selected for the study. Talisadi Churna contains around 70% sugar content. Natural sweeteners are natural healthy sugar substitutes that are better options than processed sugar and artificial sugar and also they are considered beneficial for diabetic patients. So in this study Talisadi Churna prepared by replacing Sharkara with natural sweetener Stevia Rebaudiana.

Discussion on Pharmaceutical Study:

Talisadi Churna was prepared by adopting modern pharmaceutical techniques. Pharmaceutical study included,

1. Preparation of Talisadi Churna.
2. Preparation of Talisadi Churna by replacing Sharkara with Stevia Rebaudiana.

Preparation of Talisadi Churna:

In this preparation Talisa Patra, Maricha, Shunti, Pippali, Ela, and Twak are the ingredients with volatile oil content. These were mixed as per classical proportions.

Raw material analysis: The raw materials procured were analyzed as per the standards prescribed in API. The samples which stood up to the quality parameters only were used for the preparation. All the raw materials except Vamshalochana and Stevia Rebaudiana have API standards. Hence Vamshalochana and Stevia Rebaudiana reference was taken from scientific paper.

While powdering the Ela special care was taken as it is rich in volatile oils. So while powdering there may be a chance of loss of volatile oil. So it is added with little amount of Sharkara. Then it was easily powdered and could prevent the wastage of volatile oil which gets absorbed by Sharkara.

Each drug shows different yield of Churna while preparing individually might be because of presence of fibers or larger particle size. So here each drug is powdered separately and the powders were weighed and taken.

Discussion on Analytical study:

After the formulation was prepared they were subjected to chemical analysis before subjecting for clinical trial. The methods and parameters adopted for analysis were taken from different pharmacopoeias and various analytical books. Different parameters used for the analysis of a sample stand as a method of standardization of formulation. So that quality of the product can be established.

In the present study, analytical study of Talisadi Churna and its variant prepared using replacing Sharkara with Stevia rebaudiana were done.

- The organoleptic characters show the appearance of forms of formulation by means of sensitive organs. The typical odour of Talisadi Churna was appreciated in both the samples. The colours of Churna are creamish white and greenish white respectively. The taste of Talisadi Churna is different from Churna prepared using Stevia rebaudiana
- Organoleptic study showed no much variation in organoleptic characters of both the samples as it was observed after 2 and 12 months. The after 12month colour changed to brownish white and intensity of odour was observed to be reduced in Talisadi Churna. This may be due to absorption of moisture content. Whereas Talisadi Churna prepared using stevia rebaudiana remained unchanged.
- When the parameters like total ash, acid insoluble ash, are compared they seem to be more in Talisadi Churna prepared using Stevia rebaudiana with 22.56% and 18% than Talisadi Churna with value 11.30%, 9.3% respectively. Determination of total ash signifies the percentage of inorganic salts present in the drugs.
- The extract values found higher in Talisadi Churna than Talisadi Churna prepared using Stevia rebaudiana. Water soluble extract are 71.84% and 21.68% respectively. Alcohol soluble extract were 4% and 10.56% respectively. Alcohols soluble extract were more in Talisadi Churna prepared using Stevia rebaudiana. Totally this suggests that Talisadi Churna consists of organic solvents soluble in water as well as some other media. Water soluble extractives- This helps to determine the water soluble constituents of plant materials like tannins, mucilage, sugar, saponins etc. Alcohol soluble extractives- It is a measure of alcohol soluble constituents like alkaloids, resins, etc.
- Water soluble extract found to decrease after 2 month and 1 year in both samples.it signifies that water soluble principle might have lost on standing for longer duration.
- Alcohol soluble extract was found increase after 1 year in Talisadi Churna and in Talisadi Churna prepared with Stevia rebaudiana, changes in alcohol soluble extract is negligible.
- The ph. value of Talisadi Churna is, basic in nature whereas Talisadi Churna prepared using stevia was less basic compared to Talisadi Churna. The ph. value of both become acidic in nature after 2 months and become more acidic after 1 year. It supports certain chemical changes on standing for longer duration.
- Percent weight loss on drying or moisture content was found to be 2.3% w/w and 6.59% in Talisadi Churna and Talisadi Churna prepared using Stevia rebaudiana.
- Loss on drying shows negligible variations after 2 month and significant variation after 1 year in Talisadi Churna might be because of increase in the moisture content. Where as in Talisadi Churna prepared using Stevia rebaudiana showed negligible variation after 2 months and 1 year. The less value of moisture content could prevent bacterial, fungal or yeast growth.
- T.L.C study of the both sample revealed closer and common in both Churna. No specific values derived in both samples. Rf values dint show much difference after 2 month and 1year but intensity of appearance of spots reveals much more diversity. It may be due to certain chemical changes.
- Physico-chemical analysis revealed considerable variation in loss on drying, soluble extracts and ph. when both sample were compared soon after preparation and after 1 year.

Conclusion

By observing the Pharmaceutical part, both the samples of *Talisadi Churna* are easy to prepare and is cost effective . In general, *Talisadi Churna* prepared by replacing *Sharkara* with Stevia rebaudiana was more acceptable to the patients and is not much irritant and was smoothening to throat. It was found effective in lesser dose. Analytical study revealed variation between the two samples. *Talisadi Churna* prepared by replacing *Sharkara* by Stevia rebaudiana is more stable even after one year compared to *Talisadi Churna*. The few disadvantages of Talisadi Churna can be over ruled by developing its modification as per satisfaction of physician, Pharmacist and consumer and depending upon the efficacy on management of clinical conditions . so further studies may helpful in evaluating efficacy of modified formulation of talisadi churna.

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