ORIGINAL ARTICLE

Pharmaceutical preparation of *Saubhagya Shunthi Churna*: A herbal remedy for puerperal women

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ABSTRACT

Background: In the last few decades, there has been exponential growth in the field of herbal remedies. Pharmacopoeial preparations like *avleha or paka* (semi-solid), *swarasa* (expressed juice), *kalka* (mass), *him* (cold infusion) and *phanta* (hot infusion), *kwatha* (decoction) and *churna* (powder) form the backbone of Ayurvedic formulations. Newer guidelines for standardization, manufacture, and quality control, and scientifically rigorous research will be necessary for traditional treatments. This traditional knowledge can serve as powerful search engine that will greatly facilitate drug discovery. **Purpose:** The aim of the present study is to standardize *Saubhagya Shunthi Paka* in *churna* (powder) form. The powder form makes this traditional drug more stable for long-term storage and hence, easier to preserve. **Materials and Methods:** *Saubhagya Shunthi Paka* is an ayurvedic formulation containing *Shunthi* (*Zingiber officinalis*) as one of its chief ingredients. The basic preparation of this drug is a semisolid. We checked the microbial load and nutrient values (using International Standard IS and Association of Official Analytical chemists AOAC methods) **Results:** The powdered form of *Saubhagya Shunthi Churna* yielded a weight loss of approximately 17.64% of the total weight of ingredients. The total energy of *Churna* (calculated based on nutrient content) was found higher over *Paka*. **Conclusion:** *Saubhagya Shunthi Churna* may be a good therapeutic and dietary medicine for Indian women, which may be easily prepared at home.

Key words: Ayurveda, *Churna* (powder), *saubhagya shunthi paka*, *paka* (semi-solid), puerperium

INTRODUCTION

Ayurveda, the herbal-based system of medicine is now well recognized not only in India, but also in the Western world. With the growing need for safer drugs, attention has been drawn to the quality, efficacy, and standards of Ayurvedic formulations.[1] In India, Ayurveda involves the eight principal branches of medicine: Pediatrics, gynecology, obstetrics, ophthalmology, geriatrics, otolaryngology, general medicine, and surgery. During the past few decades, there has been a growing recognition of reproductive health issues particularly, in women. Every year, at the global level, some eight million women suffer pregnancy-related complications and over half a million die, 99% of them in the developing countries.[2] Problems that are specific to women's reproductive process can be divided into two. Firstly, problems occurring during pregnancy, delivery, and the puerperium, referred to in the medical literature as obstetric (maternal) morbidity. Secondly, problems occurring with nonpregnant women and outside the puerperal period of six weeks, known as gynecological morbidity.[3] Women's health is a basic need for society as it affects the progeny. A woman who has just given birth to a baby along with the placenta is called "*Sutika*" in Ayurveda. During puerperium, the woman faces many problems like fever, diarrhea, edema, colic pain, abdominal distension, loss of strength, drowsiness, anorexia, delirium, and other diseases that are caused by the vitiation of *kapha* as well as *vata* which appear during puerperium. The classical concept of Ayurveda defines the ways to maintain '*Vata*', '*Pitta*,' and '*Kapha*' in a balanced state to prevent diseases.[4] These are difficult to cure because of the decrease in muscle tissue and strength in women during the puerperal period. Diseases associated with the puerperal period are called *Sutika Roga* (puerperal diseases).[5]

Ayurveda mentions specific drugs that are given for a definite duration along with specific dietetic regimens for puerperal women. *Saubhagya Shunthi Paka* is an Ayurvedic herbal formulation containing *Shunthi* as the chief ingredient. It alleviates anxiety, stress and is a natural pain reliever known to contain about 17 crude drugs.[6]

Soubhagya shunthi churna: An overview

Ayurveda uses various formulations such as solid dosage forms (pills, powders), liquid dosage forms (*asavas*, *aristhas*), and semisolid dosage forms (*ghritas*, *avlehas*, *and paka*).

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Pharmacopoeial preparations like *swarasa* (expressed juice), *kalka* (mass), *him* (cold infusion) and *phanta* (hot infusion), *kwatha* (decoction), and *Churna* (powder) form the backbone of Ayurvedic formulations.[7] *Paka* is a semisolid preparation of drugs prepared by the addition of jaggery or sugar.[4]

Saubhagya Shunthi Paka is a classical preparation from the Ayurvedic text, *"Yoga Ratnakar."* It is a very useful drug for puerperal women because it contains all the nutrients which are required during this period and can be easily prepared at the home. The combination of *Saubhagya Shunthi Paka* with *Dashamoolarishta* has a potent effect on postpartum women by helping to fulfil their body requirements and to restore their bodies to normalcy. It is known to improve digestion and relieves debility following delivery. It works well as a postnatal tonic and facilitates normal involution of the uterus, besides enhancing the production of milk.

Saubhagya Shunthi Paka, is appropriate to review is not very well known it, but because of its usefullness this traditional drug. As the *paka* preparation cannot be stored for long periods, we have formulated it in the *Churna* form, which retains the same qualities but can be preserved for longer periods. Thus, the formulation can be manufactured in large scale to be marketed as an Ayurvedic medicine.

Saubhagya Shunthi Paka consists of 17 herbal ingredients including, which have their individual health promotive effects; and their roles in puerperium have been discussed below:

- Goghrita (cow's ghee)
- Khoya (concentrated milk)
- Sita (jaggery) (*Saccharum officinarum*)
- Shunthi (*Zingiber officinale*)
- Mishriya (*Foeniculum vulgare*)
- Mustaka (*Cyperus rotundus*)
- Javitri (*Myristica fragrans*)
- Krishna-jeeraka (*Bunium persicum*)
- Sweta-jeeraka (*Cuminum cyminum*)
- Nagkeshar (*Mesua ferra*)
- Marica (*Piper nigrum*)
- Dhanyaka (*Coriandrum sativum Linn.*)
- Pippali (*Piper longum*)
- Indrjaua (*Holarrhena antidysenterica*)
- Vidang (*Embelia ribes*)
- Tejpatra (*Cinnamomum tamala*)
- Ela (*Elattaria cardamom*)

The objective of the present study was to develop a more stable churna formulation by using the same traditional medicinal herbs.

Materials and Methods

Estimation of moisture content routine procedure

The moisture content of the raw materials used in preparation of the *Soubhagya Shunthi* was estimated as follows:

1. Weights of raw material samples and weights of Petri-plates were taken separately.
2. The fresh samples were taken in the Petri-plates.
3. The Petri-plates were incubated in the oven for 24 hours at 105°C.
4. The samples were removed from the oven and cooled to room temperature.
5. Again the weights of the raw material along with the Petri-plates were measured.

Moisture content was calculated by using the formula

$$\left(\text{Weight of Petri-plates} + \text{Weight of raw material}\right) - \frac{\text{Weight of oven-dried sample}}{\text{Weight of oven-dried sample}} \times 100$$

Preparation of *Saubhagya shunthi churna*

All the raw materials required for the preparation were weighed in grams [Table 1] and powdered separately in a pulverizer and then weighed again.

1. *Khoya* was taken in a vessel and heated with "*Madhyanagni*" (medium intensity fire) with the addition of a little *Goghrita* until it became brown in color.
2. *Goghrita* was taken in another vessel and mixed with the powder of *Shunthi* before frying the preparation properly.
3. All the *Prakshepya Dravya* drugs were taken in their powdered forms, *i.e.*, *Khand* (jaggery), *Mishreya* (*Foeniculum vulgar*), *Dhanyaka* (*Coriandrum sativum*), *Vidanga* (*Embelia ribes*), *Maricha* (*Piper nigrum*), *Swetajeeraka* (*Cuminem cyminum*), *Krishnajeeraka* (*Nigella sativa*), *Javitri* (*Myristica fragrans*), *Pippali* (*Piper longum*), *Ela* (*Elattaria cardamom*), *Tejpatra* (*Cinnamomum tamala*), *Nagkeshar* (*Mesua ferra*), *Indrajau* (*Holarrhena antidysenterica*), *Musta* (*Cypurus rotundus*) along with the fried *Khoya* (condensed milk) and fried "*Shunthi* preparation".
4. All the contents were properly mixed to obtain *Saubhagya Shunthi Churna*.

Assessment of nutritive value of churna and paka preparations of *Saubhagya shunthi*

The samples of both the forms (*Churna* and *Paka*) of the drug were sent to the 'Regional food and Research Analysis Centre, Lucknow', where certain tests were performed to investigate their nutritional value. They used the 'IS method' and 'AOAC Method' as follows:

Calculation of Total Energy = (Estimated value of Protein × 4) + (Estimated value of Fat × 9) + (Estimated value of Carbohydrate × 4)

Shelf-life analysis of *Saubhagya shunthi churna and paka*

This test was performed to check the microbial load of both the samples in our own laboratory. The samples were incubated in Yeast Extract Mannitol (YEM) medium for 36 hours along with plain YEM medium as a control.

Table 1: Ingredients of *Saubhagya shunthi churana*

Materials	Weight (g)
Cow's *ghee*	1000
Khoya	1000
Khand	2500
Shunthi	450
Mishreya	250
Dhanyaka	150
Vidanga	50
Maricha	50
Swetajeeraka	50
krishnajeeraka	50
Javitri	50
Pippali	50
Ela	50
Tejpatra	50
Nagkeshar	50
Indrajau	50
Musta	50

Results

The color of *Shunthi* was yellowish at the start and during the process and became brown after completion of the process. The weight loss of the ingredients after pulverizing into the powder form was 12.7% [Table 2]. *Shunthi* absorbed almost the entire amount of *Goghrita* at the start.

When all the contents were mixed with the fried condensed milk and the *Shunthi* fried with *Goghrita*, the final preparation of the drug was observed to be brown in color.

The total weight loss of the drug during the final preparation was 17.64% (this means that 4.94% of the weight loss was recorded during the formulation of the drug) [Table 3]. Moisture content of *Pippali* was found to be the highest (3.55) whereas it was the lowest in *Krishna jeeraka* (1.49). The moisture content of two ingredients showed negative values: −6.00 and −2.85 for *Vidang* and *Tejpatra* respectively [Table 4].

The total energy of *Churna* (489.0 Kcal/100 g) was higher than that of *Paka* (426.0 Kcal/100 g) because the carbohydrate value of *Churna* is 41 g more than that of *Paka*. Calcium content was approximately the same for both preparations whereas iron and protein were higher in *Churna* in comparison with *Paka* [Table 5].
In the shelf-life, we found no contamination in either of the samples. (*Churna* preparation was two years old, the *Paka* was only four months old) [Figure 1].

Discussion

Ayurveda is practised widely in India, Sri Lanka, and other countries, and has a sound philosophical and experiential basis.[26,27] Atharvaveda (around 1200 BC), Charak Samhita, and Sushrut Samhita[28] (1000-500 BC) are the main classics that give a detailed description of over 700 herbs. Today the Government of India has formed stringent to regulate issues related to quality, safety, efficacy, and practice of herbal medicine.[29] With a unique holistic approach, Ayurvedic medicines are usually customized to the individual's constitution.[30]

Standardization and development of reliable quality protocols for Ayurvedic formulations using modern techniques of

Table 2: Weight loss of ingredients during grinding of herbs

Name of ingredients	Initial weight (g)	Final weight (g)	Loss of weight (g)
Shunthi	450	425	25
Mishreya	250	220	30
Dhanyaka	150	110	40
Vidanga	50	45	5
Maricha	50	45	5
Swetajeeraka	50	40	10
Krishnajeeraka	50	45	5
Javitri	50	40	10
Pippali	50	45	5
Ela	50	47	3
Tejpatra	50	35	15
Nagkeshar	50	40	10
Indrajau	50	35	15
Musta	50	40	10
Total powdered herbs	1400	1212	188

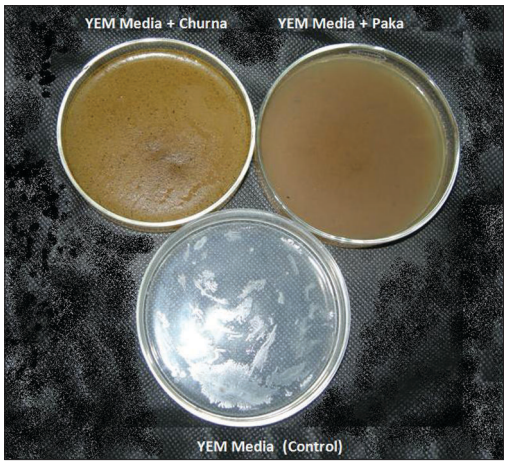

Figure 1: shelf-life study of *Saubhagya shunthi churna* and *paka* after 36 hour incubation

Table 3: Total loss of weight of ingredients during preparation of drug

Name of ingredients	Initial weight (g)	Final weight (g)	Loss of weight (g)
Powdered herbs	1400	1212	188
Condensed milk	1500	1000	500
Cow's butter	1000	1000	0
Total	3900	3212	688

Table 4: Total loss of moisture content of ingredients

Sample	Wt. of FS[1] (g)	Wt. of PP[2] (g)	Wt. of ODS[3] (g)	Moisture content (%)
Shunthi	29.44	47.67	75.2	2.539894
Marica	29.89	29.56	57.56	3.28353
Dhaniya	12.63	41.52	52.85	2.459792
Indrajau	12.36	38.73	50.29	1.590774
Jeera	10.64	33.64	43.61	1.536345
Krishna jeeraka	12.01	50.59	61.68	1.491569
Soufa	14.16	36.56	49.35	2.776089
Motha	18.09	41.81	58.51	2.375662
Ila	19.28	36.6	47.74	17.05069
Nagkesher	11.22	38.23	48.56	1.832784
Pippali	15.85	40.48	54.4	3.547794
Vidang	10.01	44.16	57.63	−6.00382
Tejpatra	4.49	15.96	21.05	−2.85036
Javatri	5.72	15.96	21.19	2.312412

Weight of fresh sample (raw material used in drug preparation) - Wt. FS; Weight of Petri-plates - Wt. PP; Weight of oven dry sample - Wt. ODS

Table 5: Estimation of nutritive value of *Saubhaguya Shunthi Paka* and *Churna*: A comparative analysis

Nutrients	*Saubhagya Shunthi Paka* (delivery/per gram)	*Saubhagya Shunthi Churna* (delivery/ per gram)
Iron	10.5 mg	17.04 mg
Protein	6.8 g	7.15 g
Fat	25.7 mg	14.11 mg
Carbohydrate	42.5 g	83.5 g
Calcium	212.02 mg	211.39 mg
Vitamin B^{12}	0.5 mcg	0.5 mcg/100 g
Total Energy	426.0 Kcal	489.6 Kcal/100 g

analysis is extremely important.[31] Standardization should be done by using appropriate amounts of raw materials, followed by in-process control and shelf-life analysis with authentic clinical trials.[32]

Shunthi is used in folk medicine for relief from many ailments, especially nausea, motion sickness, and other gastrointestinal disorders.[33] *Churna* and *paka kalpana* both have similar effect in *sutika kala*. However the present study was focused on *churna kalpana* because of the short shelf- life of *paka kalpana*. According to the 'Ayurvedic Formulary of India', the *Paka* (*Avaleha*) should be used within one year only,[34] whereas *Churna* is safe for use even after two years. The nutritive value is also an important reason for the preference of *Churna* to *Paka*. In light of this information, *Saubhagya Shunthi Churna* to be used for this study was prepared from the same ingredients as those described in *Yoga Ratnakar*.

Conclusion

Saubhagya Shunthi can be prepared in both forms, *i.e.*, *churna* (Powder) and *paka* (semisolid). Although both preparations show the same effect in *Sutika Kala*, the *churna* can be seen to be better than the *paka* form due to its longer shelf-life and comparatively higher total energy. *Saubhagya Shunthi Churna* may be a good therapeutic and dietary medicine for Indian women, which may be prepared at home easily. This traditional formulation can provide novel insights into the drug discovery and development process., This drug can be useful for the pharmaceutical companies searching for economically valuable natural products.

The design of a new drug necessitates the study of the effects of a drug. Thus, the clinical benefits of this ayurvedic drug over standard therapy should be extremely convincing. Hence, there is a need for further study to evaluate the effects of the drug by a case control study and to elucidate its complete mechanism of action.

References

1. Agarwal S, Singh RH. Proceedings of International Congress, Ayurveda, 28-30th January 2002. p. 209-21.
2. World Health Organization [WHO]. Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer. Geneva, Switzerland, WHO; 2004. p. 150.
3. AbouZahr C. Global burden of maternal death and disability. Br Med Bull 2003;67:1-11.
4. Jadhav AN, Bhutani KK. Ayurveda and gynecological disorders. J Ethnopharmacol 2005;97:151-9.
5. Kashyap BD. Diagnosis and Treatment of Puerperal Diseases. In: Five Specialized Therapies of Ayurveda (Panch Karma) 1992. p. 51.
6. Shastri VL. Sutika Roga Chikitsa, Uttarardha. In: Yoga Ratnakar. 2nd ed. The Chowkhamba Sanskrit Series office Varanasi; 1973. p. 249.
7. Singh A. Ayurvedic Pharmaceutical Sciences-Challenges Ahead. Ethnobotanical Leaflets 2008;12:607-8.
8. Chaturvedi S. Ayurveda-Indepth Vegetarianism. In: Role of Vegetarian Diet in Health and Disease 2009:1:51.
9. Mark AP. Your milk Supply. In: The Complete Idiot's Guide to Breastfeeding. Published by Alpha Books; 2000. p. 142.
10. Pole S. Plant Profiles. In: Ayurvedic Medicine: The Principles of Traditional Practice. Published by Elsevier Health Sciences; 2006. p. 228.
11. Wiart C. Plants affecting the central nervous system. In: Ethnopharmacology of medicinal plants: Asia and the Pacific. Humana Press; 2006. p. 58.

12. Ramadan MF. Nutritional value, functional properties and nutraceutical applications of black cumin (*Nigella sativa* L.): An overview. Int J Food Sci Technol 2007;42:1208-18.
13. Parekh J, Chanda SV. Antibacterial Activity of Aqueous and Alcoholic Extracts of 34 Indian Medicinal Plants against Some *Staphylococcus* Species. Turk J Biol 2008; 32:63-71.
14. Parekh J, Chanda S. *In vitro* antifungal activity of methanol extracts of some Indian medicinal plants against pathogenic yeast and Moulds. Afr J Biotechnol 2008;7:4349-53.
15. Lin RI. Pharmacological properties and medicinal use of pepper (*Piper nigrum* L.). Dev-food-sci 1994;34:469-81.
16. Chaudhry NM, Tariq P. Bactericidal activity of black pepper, bay leaf, aniseed and coriander against oral isolates. Pak J Pharm Sci 2006;19:214-8.
17. Emamghoreishi M, Khasaki M, Aazam MF. *Coriandrum sativum*: Evaluation of its anxiolytic effect in the elevated plus-maze. J Ethnopharmacol 2005;96:365-70.
18. Pullaiah T. In: Encyclopaedia of World Medicinal Plants. Daya Books; Vol. 4. 2007. p. 1543.
19. Brown HC. Holarrhena antidysenterica. Br Med J 1992;306: 903-10.
20. Ahmad I, Mehmood Z, Mohammad F. Screening of some Indian medicinal plants for their antimicrobial properties. J Ethnopharmacol 1998;62:183-93.
21. Ballal M, Srujan D, Bhat KK, Shirwaikar A, Shivananda PG, *et al.* Antibacterial activity of Holarrhena antidysenteric (Kurchi) against the enteric pathogens. Indian J Pharmacol 2001;33:392-393.
22. Chakraborty A, Brantner AH. Antibacterial steroid alkaloids from the stem bark of Holarrhena pubescens. J Ethnopharmacol 1999;68:339-44.
23. Raghu AV, Geetha SP, Martin G, Balachandran I, Ravindran PN, *et al.* Direct shoot organogenesis from leaf explants of Embelia ribes Burm. a vulnerable medicinal plant. Acta Physiologiae Plantarum 2007;29:455-61.
24. Anon. The wealth of India-raw materials. National Institute of Science Communication, CSIR. New Delhi, India: 2002. p. 74-5.
25. Chopra VL, Peter KV. cardamom. In: Handbook of Industrial Crops. Haworth Press; 2005. p. 72.
26. Dahanukar S, Thatte U. Ayurveda Revisited. Popular Prakashan; Mumbai, 3rd ed. 2000.
27. Chopra A, Doiphode V. Med Clin North Am 2002;86:75-89.
28. Dash B, Sharama BK. Charak Samhita. 7th ed. Varanasi (India): Chaukhamba Sanskrit Series; 2001:
29. National Policy on Indian Systems of Medicine and Homoeopathy-Ministry of Health and Family Welfare, Government of India. Available from: http://www.indian medicine.nic.in. [last assessed on 2002].
30. Patwardhan B. Ayugenomics: Integration for customized medicine. Indian J Nat Prod 2003;19:16-23.
31. Elamthuruthy AT, Shah CR, Khan TA, Tatke PA, Gabhe SY. Standardization of marketed Kumariasava-An Ayurvedic Aloe vera product. J Pharm Biomed Anal 2005;37:937-41.
32. Devi M. Quality Control and assurance of India Medicines. Health Administrator Available from: http://medind.nic.in/haa/t07/i1/haat07i1p21.pdf. [last cited on 2009 Aug 20].
33. Suthar AC, Banavalikar MM, Biyani MK. A review on ginger (Zingiber officinale): Pre-clinical and clinical trials In J Tradit Knowl 2003;2:62-8.
34. Chapter in a book: Avaleha or Leha and Pākā. In: Ayurvedic Formulary of India. 2nd ed. The Controller of Publication (Civil Lines, Delhi); 2003. p. 31.

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