



## PHARMACOLOGICAL AND PHYTOCHEMICAL EVALUATION OF POORNAYU SWARNA PRASHAN BINDU

Prof. Dr. Swapnil Singhai<sup>1</sup>, Prof. Dr. Amit Mukherjee<sup>2</sup> and Dr. Gaurav Kumar Shaha<sup>3</sup>

Principal Cum Medical Superintendent, Poornayu Ayurved Chikitsalaya Evam Anusandhan Vidyapeeth,  
Tilwaraghat, Jabalpur (M.P.) India - 482003

Professor, Department of Panchakarma, Poornayu Ayurved Chikitsalaya Evam Anusandhan Vidyapeeth,  
Tilwaraghat, Jabalpur (M.P.) India - 482003

Associate Professor, Department of Kayachikitsa, Poornayu Ayurved Chikitsalaya Evam Anusandhan Vidyapeeth,  
Tilwaraghat, Jabalpur (M.P.) India - 482003

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### ABSTRACT

Poornayu Swarna Prashan Bindu is a combination of gold, *go-ghrita* and multi-herb which contains nine important herbs in fresh and dried form. The present study provides updated information on its phytochemical analysis, pharmacological properties, microbial limit, heavy metal study and probable mode of action of Poornayu Swarna Prashan Bindu. Organoleptical, Physio-chemical properties, microbial test, heavy metal study and probable mode of action of drug were evaluated as a primitive step to analyse the Poornayu Swarna Prashan Bindu. The Physiochemical properties on loss on drying – 26.41%, Refractive Index at 40°C – 1.4544, Weight per ml at 40°C – 0.901, specific gravity – 0.908, saponification value – 233, Iodine value – 36.84, Acid value – 0.66, Peroxide value – 0.64, Congealing point – passes to test, Mineral oil absent, pH value – 4.21. The Microbial study and heavy metal study were also performed. The results of microbial test are within limit as per API specification. It is made with gold, *go-ghrita*, and herbs, it does not contain heavy metals like arsenic, lead, mercury, or cadmium. Probable gross action of Poornayu Swarna Prashan Bindu possesses *Medha Agni BalaVardhanam* (enriches intelligence, i.e. brain capacity, absorption, metabolism, invulnerability, and body strength), *Ayushyam* (improving lifespan), *Mangalam* (lucky), *Punyam* (moral), *Vrushyam* (aphrodisiac), *Varnyam* (improving colour and skin texture) and *Grahapaham* (safeguard from evil spirits and micro-organisms) are the basic benefits of Suvarna Prashan.

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### INTRODUCTION

Childhood is a phase of rapid development and growth. A child experiences external influences in addition to internal biological changes at this age. A child must achieve optimal growth and development in order to reach maturity, in addition to these effects and immature bodily processes. But unfortunately, many of children dies prematurely for a variety of causes.

One of the body's complex biological systems is the immune system. It activates when pathogens or other disease-causing

agents damage the body's defences. In the interest of the individual, the host can use this defence system to recognise, eradicate, or destroy any item that is alien to his body. Strong immunity is correlated with strong defence.

Acharya Charaka in *Sutrasthana* 27 mentions this defence mechanism as *Vyadhikshamatwa*. Acharya Chakrapani in his commentary on *Vyadhikshamatwa* quotes its types as-

1) *Vyadhibalvirodhi Kshamata* and 2) *Vyadhi Utpad Pratibandhaka Kshamata*.<sup>1</sup>

*Vyadhi Bal Virodhi Kshamata* indicates capability of fighting against the disease that has emerged in the body. Whereas, *Vyadhi Utpad Pratibandhaka* means capability to prevent occurrence of disease. Thus, first one stands for curative and the other one for prophylactic way to deal with the disease. Acharya Charaka says that disease of a person who has *Uttama Bala* can be cured without much difficulty which means if the

\*Corresponding author: Dr. Swapnil Singhai

Principal Cum Medical Superintendent, Poornayu Ayurved Chikitsalaya Evam Anusandhan Vidyapeeth,  
Tilwaraghat, Jabalpur (M.P.) India - 482003

**Table 1.** Showing the ingredients of Poornayu Swarna Prashan Bindu and their part used and quantity used are as Following

S.No.	Ingredients	Latin Name/Chemical composition	Part Used	Quantity Used Each 15 ml
1	Swarna Bhasma	Gold (Aurum Au)	Bhasma	15.000 ml
2	Bramhi (Fresh Herb)	Bacopa momnieri Linn.	Whole plant	0.020 gm
3	Shankhpushpi (Fresh Herb)	Convolvulus pluricaulis	Whole plant	16.667 gm
4	Guduchi (Fresh Herb)	Tinospora cordifolia (Willd.)	Stem	16.667 gm
5	Madhuyasti (Dried Herb)	Glycyrrhiza glabra Linn.	Stem	0.667 gm
6	Vacha (Fresh Herb)	Acorus calamus Linn.	Rhizome	0.833 gm
7	Jatamansi (Dried Herb)	Nardostachys jatamansi DC.	Root	0.333 gm
8	Ashwagandha (Dried Herb)	Withania somnifera Dunal.	Root	0.333 gm
9	Shatavari (Fresh Herb)	Asparagus racemosus Willd.	Root	0.333 gm
10	Bala (Dried Herb)	Sida cordifolia Linn.	Root	0.333 gm
11	Murchita Go-ghrita	Clarified Cow's Butter	Ghee	15.000 ml
12	Excipients, Additives, Flavours and Preservatives			Q.S.

capacity of a person to fight the disease is good, he will be cured soon.<sup>2</sup>

There are many methods mentioned in Ayurveda to enhance and maintain this, Bala. The present study is aimed to explore the possible ways to produce and enhance /modulate *Vyadhikshamatwa* i.e. immunity for the benefit of a child. The most recent advancement in the field of Ayurvedic paediatrics that has drawn attention from all across the world is Suvarna Prashan. Acharya Kashyapa described the use of treated gold in children as 'Suvarna Prashan', a special Ayurvedic preparation, thousands of years ago. He clearly explained that children can benefit from using Swarna (gold) to improve their intelligence (brain capacity), memory, digestion, metabolism, somatic ability, insusceptibility, complexion, fertility, durability, and Grahabadha.

According to the text, after a month of licking, the infant's IQ increases significantly and the illness has no effect on him or her. A child who receives Suvarna Prashan for six consecutive months gains the ability to remember words that are only spoken once. Numerous Acharyas have also identified a number of gold and medicinal product mixtures for long-term use in newborns. On the basis of the intended result for a healthy child, the duration and timing of Suvarna Prashan can be determined.<sup>3</sup>

## MATERIALS AND METHODS

**Collection and authentication of drugs:** The fresh raw drugs were collected from Poornayu botanical garden and dried raw drugs were purchased from local market. Swarna Bhasma has procured from Dhootpapeshwar pharmacy. The pure Go-ghrita manufactured by Poornayu Pharmacy has been used. The identity of the drugs has confirmed by HOD of Dravya Guna department and Rasa-shastra department of Poornayu Ayurved Chikitsalaya Evam Anusandhan Vidyapeeth, Tilwaraghat, Jabalpur (M.P.). These drugs were compared with voucher specimen and available literature in the institute.

**Method of Preparation of Poornayu Swarna Prashan Bindu:** *Murchita Ghrita* was taken for preparation of Swarna Prashana. As per the descriptions of preparation of medicated *Ghrita*, *Siddha Ghrita* was prepared by boiling it over a low heat with *Kashaya* of dried herbs and *Kalka* of fresh herbs till *Ghrit Siddhi Lakshana* was achieved, as stated in Sharangdhar Samhita Madhyam khanda.<sup>4</sup> The *Ghrita* was then filtered. Swarna Bhasma was added in the specified amount once it reached room temperature, and the mixture was extensively triturated for three days to achieve the consistency of linctus. The finished product was kept in a dropper-equipped, airtight glass container.

**Table 2.** Pharmacological study: Table showing pharmacological properties of ingredients of Poornayu Swarna Prashan Bindu<sup>5</sup>

S.No.	Name	Rasa	Guna	Virya	Vipaka	Karma
1	Swarna Bhasma	Madhura, Kashaya	Laghu, Snigdha	Madhura	Sheeta	Vrishya, Varnya, Balya, Deepana, Tridosha-nashak, Jwaraghna, Brimhana, Vajikarana etc.
2	Bramhi	Tikta, Kashaya	Laghu	Sheeta	Madhura	Medhya, Vata-pitta shamak, Deepan, Jwarahara, Svarada, Vayasasthapan, Hridya
3	Shankhpushpi	Tikta	Snigdha, Picchila	Sheeta	Madhura	Medhya, Pitta-Kapha Shamak, Kasajit, Vrishya, Kantida, Rasayan, Balada

4	Guduchi	Kashaya, Tikta	Snigdha, Laghu	Ushna	Madhura	Tridoshagna, Rasayan, Sangrahini, Balya, Dahahara, Vamihara
5	Madhuyasti	Madhura	Guru, Snigdha, Pichhila	Sheeta	Madhura	Vatapittahara, Jeevaneeya, Varnya, Kanthya, Sandhaneeya
6	Vacha	Katu, Tikta	Laghu, Teekshna	Ushna	Katu	Kapha-vatahara, Medhya, Pachana, Deepana, Vamani, Jeevani, Swara-prada, Vakprada
7	Jatamansi	Tikta, Kashaya, Madhura	Laghu, Snigdha	Sheeta	Katu	Bhutaghna, Pitta-kapha shamaka, Medhya, Manasadoshahara, Kanti-prada, Balaprada
8	Ashwagandha	Katu, Tikta, Kashaya	Snigdha, Laghu	Ushna	Madhura	Kapha-vata shamaka, Vrishya, Rasayan, Vajikar, Pushtiprada, Kshayahara
9	Shatavari	Madhura, Tikta	Guru, Snigdha	Sheeta	Madhura	Vata-pitta shamaka, Balya, Vayasthapana, Arshohara, Kshayapaha
10	Bala	Madhura	Guru, Snigdha, Picchila	Sheeta	Madhura	Vatashamaka, Balya, Grahi, Vrishya, Ojo vardhaka, Brimhana
11	Murchhit Go-ghrita	Madhura	Snigdha, Sheeta, Guru, Mridu, Somya, Sookshma	Sheeta	Madhura	Vata-pitta shamaka, Kaphakara, Medhya, Agnideepana, Ruchya, Anabhisayandi, Ayushya, Ojovardhaka, Rasayana, Snehana, Twachya, Vishahara

## RESULTS

**Phytochemical study** – The phytochemical study, microbial limit and heavy metal study was done at Government of India approved Quality control laboratory, Hoshangabad Road, Bhopal (M.P.).

**Organoleptic Characters** – Swarna Prashan was having Light brown colour, semisolid mass with pleasant odour and buttery in taste.

S.No.	Parameters	Results	In House Specification
1	Description	Light brown colour semisolid mass with pleasant odour & buttery in taste	Light brown colour semisolid mass with pleasant odour & buttery in taste
2	Loss on drying % (w/w) (Moisture content)	26.41	Not more than 35.0% w/w
3	Refractive Index at 40°C	1.4544	1.4400 to 1.5300
4	Weight per ml at 40°C	0.901	Not less than 0.850
5	Specific Gravity	0.908	Not less than 0.850
6	Saponification Value	233	180 to 260
7	Iodine Value	36.84	30 to 50
8	Acid Value	0.66	Not more than 5.0% w/w

## Physio-chemical Properties<sup>6</sup>

9	Peroxide Value	0.64	Not more than 6.0% w/w
10	Congeeing Point	Passes to test	22° to 17°
11	Mineral Oil	Absent	It should be absent
12	pH	4.21	2.5 – 6.5
13	Identification by TLC	Passes to test	Gives positive test for Ghee

## Microbial Limits

S.No.	Parameters	Results	Specification as per API
1	Total Microbial Plate Count (TPC)	780	10 <sup>5</sup> /g
2	Yeasts and Mould Count cfu/g	Less than 10 cfu/gm	10 <sup>3</sup> /g
3	Escherichia Coli in 1 gm	Absent	Absent
4	Salmonella in 1 gm	Absent	Absent
5	S. aureus in 1 gm	Absent	Absent
6	Pseudomonas in 1 gm	Absent	Absent

## Heavy Metals

S.No.	Parameters	Results	Specification as per API

1	Arsenic (as As) ppm	B.L.Q. (Q.L. – 0.05)	3.0 ppm max.
2	Lead (as Pb) ppm	B.L.Q. (Q.L. – 0.05)	10.0 ppm max.
3	Mercury (as Hg) ppm	B.L.Q. (Q.L. – 0.05)	1.0 ppm max.
4	Cadmium (as Cd) ppm	B.L.Q. (Q.L. – 0.05)	0.3 ppm max.

#### Probable mode of action of Swarna Prashan

Poornayu Swarna Prashan Bindu is a blend of micro fine gold particles and calcined gold particles (*Suvarna bhasma*), Ayurvedic herbs and cow ghee, which is administered at a certain time i.e. Pushya-Nakshatra. The properties of Suvarna include *Medhavardhanam*, *Agni vardhanam*, *Balavardhanam*, *Vrushya*, *Ayushyakara*, *Grahapaham*, etc. These properties of *Suvarna Bhasma* can be made use to strengthen an individual. Gold also increases memory, strength and immunity. *Ghrita* enhances mental capacity and strengthens the activity of the added substance. Most of the herbs used are having *Medhya*, *Rasayan*, *Varnya*, *Jeevaniya*, *Vrishya* properties. The mixture of Herbs-Ghrita-Swarna demonstrated a major effect of humoral antibody production in a pharmaco-clinical trial on neonates and had an effect on the immune system, which was obvious by activating the immune system response by increasing the total protein and serum IgG levels. As a result, the main advantages of Suvarna Prashan are Medha Agni Bala Vardhanam (which enhances intelligence, including brain capacity, absorption, metabolism, invulnerability, and body strength), Ayushyam (which lengthens lifespan), Mangalam (lucky), Punyam (moral), Vrushyam (aphrodisiac), Varnyam (which improves colour and skin texture), and Grahapaham (which protects against evil spirits and microorganisms).

#### DISCUSSION

The analytical study of 'Poornayu Swarna Prashan Bindu' focuses on its efficacy and safety as an Ayurvedic practice involving the administration of gold-infused herbal preparations to children.

Poornayu Swarna Prashan Bindu is a combination of gold, *Go-ghrita* and multi-herb which contains nine important herbs in fresh and dried form. Organoleptical, Physio-chemical properties, microbial test, heavy metal study and probable mode of action of drug were evaluated as a primitive step to analyse the Poornayu Swarna Prashan Bindu.

As revealed by the results, organoleptical characters showed light brown colour semisolid mass with pleasant odour and buttery in taste, which may be due to the combination of herbal drugs and *Murchit Go-ghrita*. Physio-chemical test Loss on drying, moisture content, refractive index, weight, specific gravity, saponification value, Iodine value, Acid value,

Peroxide value, Congealing point, Mineral oil, pH value and Identification by TLC results are normal as mentioned in the Ayurvedic Pharmacopoeia of India Part-II (Formulation). The Microbial study and heavy metal study were also performed. The test results of Total Microbial plate count, Yeasts and Mould count, *Escherichia Coli*, *Salmonella*, *S.aureus*, *Pseudomonas* are within limit as per API specification. The *Go-ghrita* doesn't contain any water content because it was properly heated.

Swarna Prashan Bindu is made with gold, *Go-ghrita*, and herbs, it does not contain heavy metals like arsenic, lead, mercury, or cadmium.

The basic benefits of Suvarna Prashan are Ayushyam (improving lifespan), Mangalam (lucky), Punyam (moral), Vrushyam (aphrodisiac), Varnyam (improving colour and skin texture), Medha Agni Bala Vardhanam (enriches intelligence, i.e. brain capacity, absorption, metabolism, invulnerability, and body strength), and Grahapaham (protection from evil spirits and microorganisms).

#### CONCLUSION

In present study, various standardized parameters such as pharmacological, phytochemical, microbial limits, heavy metals study and probable mode of action of Poornayu Swarna Prashan Bindu were carried out, which could be helpful in standardization of medicine and provide useful information and authentication of the drugs. The phytochemical investigation can further be isolated and undergo further pharmacological evaluation of the active principles present in the Swarna Prashan.

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