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## Pharmaceutico - Analytical Study of *Swarnprashan Yoga*

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### ABSTRACT

*Swarnprashan* is one of the oldest traditions of India. *Suvarnprashan* is described since Vedic era. Now a days as an immunization program *Suvarnprashan* is promoted to leak on the occasion of *Pushya Nakshatra*. *Swarnprashan* is an immune modulator and this is a treatment concept of new era. It is a cost-effective remedy for immune modulation. *Swarnprashan* when regularly administered it increases baby's immunity, strength, appetite, complexion, and health. Administration of processed gold in children is a unique practice mentioned in Ayurveda as *Swarnaprashana* by *Acharya Kashyapa* thousands of years back. There are various formulations of gold and even along with herbal drugs explained by different *Acharya* for prolonged usage in children. Ayurveda recommends only purified and processed gold for internal administration. *Swarnaprashana Yoga* contain *Vachadi Ghruta*, Honey and *Swarnbhasma*. *Swarnprashan Yoga* ingredients are proved to possess nootropic, anticonvulsants, antidepressant, antiepileptic, antipsychotic, antioxidant, immunomodulatory properties.

**Key words:** *Swarnprashan Yoga*, *Ayurveda*, *Medicated ghee*, *Nootropic*, *immuno-modulator*, *Vachadi Ghruta*.

### INTRODUCTION

*Rasashastra* and *Bhaishajya Kalpana* is one of the branch of Ayurveda in which all methods of Ayurvedic medicine purification, formation, dose, indication are available. The usage of metals and minerals was well-known to mankind since thousands of years. *Swarnprashan Yoga* is one of the medicated *Ghruta* formulations claimed in Ayurveda to improve cognition (intellect and memory). Eight herbal drugs of *Vachadi Ghruta* have been reported for their Anti psychotic,

Anti stress, Anti depressant and Nootropic activities.<sup>[1]</sup>

*Acharya Kashyapa* described *Swarna Prashana* as *Jatkarma Sanskara* for the neonatal care in *Lehan*. *Adhaya* of *Sutra Sthana* in his written before 600 B.C. He explains the preparation of *Swarna Prashana*, one should sit facing towards the *Poorva Disha* (east direction), take and rub it against the hard surface like stone with water and then mix with *Madhu* given for licking. This is called as *Swarna Prashana* and benefits of this are improvement in digestion, improvement of intellect, *Agni* (improvement in digestion), *Bala Vardhanam* (improvement in strength and immunity), *Ayu Vardhanam* (improvement in life span), *Mangalya*, *Punya* (auspicious) *Grahapaham* (relieves bad evil).

By administering *Swarna* to child for one month, he becomes *Param Medhavi* (super intelligent) and by administering for up to six months, person becomes *Shrutadhara* (can remember whatever he/she hears). The appropriate day for *Swarna Prashana* is *Pushya Nakshatra*.<sup>[2]</sup>

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**Method of preparation of Swarnprashan Yoga**

SN	Content	Proportion
1.	Vachadi Ghruta	60%
2.	Honey	40%
3.	Swarnbhasma	0.15%

**MATERIALS AND METHODS**

All the Material required for preparation of Swarnprashan Yoga were procured from market required for the study.

**Preparation**

For the Preparation of Swarnprashan Yoga first we need to prepare Vachadi Ghruta and then honey and Swarnbhasma will add in that according to above ratio. Vachadi Ghruta was prepared as per standard guideline stated in Ayurvedic classical text for preparation of medicated ghee formulations.

**These were the following steps to prepare Vachadi Ghruta**

1. First we did the Ghruta Murchana. First we took plain Ghrut then add Ghrut Murchana Dravya like Triphala, Musta, Haridra, Nimbu Swaras, Jal. All drugs were taken and Ghrut Murchana was done. Then after Murchit Ghrut were taken for preparation of Vachadi Ghruta.<sup>[3]</sup>
2. Decoction was prepared by using Coarse powder of eight potent herbal drugs viz. Vacha (Acorus calamus), Guduchi (Tinospora cordifolia), Shati (Hedychium spicatum), Haritaki (Terminalia chebula), Shankhapushpi (Convolvulus pluricaulis), Vidanga (Embelia ribes), Shunti (Zingiber officinale) and Apamarga (Achyranthes aspera) by adding 16 Part of Water and heated on low flame till 1/8 part of it remains.<sup>[4,5]</sup>
3. Fine powder of above 8 drugs was taken and adds plain water and triturated till further converted into paste form.
4. Then in a vessel Decoction were taken and add Murchit Go Ghruta and Kalka were added in that

and whole mixture was further heated on low flame till total water content was removed and active components of herbal drugs was extracted in Cow Ghee.

5. When Ghrut Siddhi Lakshan were observed as mentioned in Sharangdhar Samhita Madhyam Khanda then filter the Vachadi Ghruta.
6. When Vachadi Ghrut may become cool then add honey and Swarnbhasma in Vachadi Ghrut in above proportion to make Swarnprashan Yoga.

**Evaluation**

To evaluate the formulations prepared, quality control tests including organoleptic assessment and physicochemical controls such as Specific gravity, Moisture content, Saponification value, Iodine value, Unsaponifiable matter test were carried out.

**Physical Appearance Inspection<sup>[6,7]</sup>**

The Swarnprashan Yoga were evaluated in terms of their appearance i.e., Semi solid Ghee, Greenish golden yellow in colour, Characteristic in odour and sweet in taste.

**Importance of Specific Gravity**

It is a ratio of weight of material in reference to weight of water for constant volume. The weight of lipid material is affected by basic constitution, dissolved constituents used during the processing of formulation. It also changes due to the effect of temperature during the process.

**Moisture Content**

It indicates the presence and percentage of moisture in the substance. Higher value of moisture suggests that is more susceptible for getting contaminated. Go Ghruta is more susceptible for getting contaminated. The moisture content in sample was within permissible limit, indicating that they were free from contamination.

**Iodine Value**

This value determines the amount of unsaturated fatty acids in the form of double bond which reacts with iodine. High iodine value indicates fats are rich in poly-

unsaturated fatty acids (PUFA) which are helpful in reducing LDL cholesterol level.

### Saponification Value

It is the measure of average molecular weight (or chain length) of all fatty acids present in the fat. It is said that in manufacture of medicated ghee formulations, due to process of hydrolysis, liberation of low molecular weight SCFA (short chain fatty acids) is carried out. It might be happening in the presence of alkaline nature of paste of herbal drugs and liquid media. SCFA are recognised as an essential fuel source for colonocytes, particularly in distal colon. The histological, endoscopic and metabolic similarities between diversion colitis and ulcerative colitis suggest that nutritional SCFA deficiency state may play an important role in pathogenesis of these diseases. SCFA are readily absorbed and may play an important role as a protective effect for distal colon.

### Unsaponifiable Matter

The Unsaponifiable matter consists of substances present in oils and fats which are not saponifiable by alkali hydroxides and are determined by extraction with an organic solvent of a solution of the saponified substance under examination.

## RESULT

**Table 1: Analytical reports of Swarnprashan Yoga**

SN	Test	Result
1.	Appearance	Semi Solid Ghee
2.	Colour	Greenish Golden Yellow
3.	Odour	Characteristic
4.	Taste	Sweet
5.	Specific Gravity	1.05
6.	Moisture Content	0.29 %
7.	Saponification Value	194

8.	Iodine Value	30
9.	Unsaponifiable Matter	1.72

### Modern review of gold as Immunomodulator<sup>[8,9,10,11]</sup>

In Ayurvedic *Bhasmas*, the gold is used in the form of purified metallic fine powder (probably as nano-particles) or red colloidal solution where both are prepared by elaborate treatments including using herbal extracts and even with other metals. The success of preparing a genuine Ayurvedic *Bhasma* depends on the technique of heat treatment (called as *Putas*) to the homogeneous paste prepared by mortaring microfinned metal thoroughly mixed with appropriate plant juices. Normally a large number of calcination cycles are necessary and for each cycle the process of mortaring the microfinned metal and plant juice is to be freshly repeated. Therefore, synthesis of these *Bhasmas* is a complicated and tedious procedure and Ayurvedic experts prepared these *Bhasmas* on certain SOP and GMP norms notified by Dept. of AYUSH for the same.

Researchers have also reported the mode of action of metal nano particles in detail. Harvard Medical School researchers report in the Feb. issue of Nature Chemical Biology that special forms of gold, platinum, and other classes of medicinal metals work by stripping bacteria and virus particles from the grasp of a key immune system protein.

MHC class II proteins are associated with autoimmune diseases. MHC class II proteins normally hold pieces of invading bacteria and virus on the surface of specialized antigen presentation cells. Presentation of these pieces alerts other specialized recognition cells of the immune system called lymphocytes, which starts the normal immune response. Usually, this response is limited to harmful bacteria and viruses, but sometimes this process goes awry and the immune system turns towards the body itself causing autoimmune diseases such as Juvenile diabetes, Lupus, and rheumatoid arthritis.

During their search through thousands of compounds they found that the known cancer drug, Cisplatin, a

drug containing the metal platinum, directly stripped foreign molecules from the MHC class II protein. From there, they found that platinum was just one member of a class of metals, including a special form of gold, that all render MHC class II proteins inactive.

In subsequent experiments in cell culture, gold compounds were shown to render the immune system antigen presenting cells inactive, further strengthening this connection. These findings now give researchers a mechanism of gold drug action that can be tested and explored directly in diseased tissues.

Such kind of mode of action for Ayurvedic *Swarna Bhasma* is urgently needed for more scientifically validated therapeutic application of all these formulation containing *Swarna Bhasma* of Ayurveda. Many authorities of subject are continuously indicating cautions in application of nano particles. Development of novel nano particles must be followed by the assessment of their potential risks on life and environment, and possible remedial measures.

#### Action of Madhu<sup>[12,13]</sup>

*Madhu* is manufactured from pollen grains by bees. The reason behind adding *Madhu* in *Swarna Prashana* is that when *Madhu* is administered in low doses to new-born, the child gradually develop resistance for allergens and it remains unaffected by allergic disorders. Raw honey possesses nootropic effects, such as memory-enhancing effects, as well as neuropharmacological activities, such as anxiolytic, antinociceptive, anticonvulsant, and antidepressant activities. The belief that honey is a memory-boosting food supplement is actually ethnotraditional as well as ancient in nature. For instance, honey is reported to be an important component of *Brahma Rasayan*, an Ayurvedic formulation that is prescribed to extend the lifespan and improve memory, intellect, concentration, and physical strength. One established nootropic property about honey is that it assists the building and development of the entire central nervous system, particularly among new-born babies and Preschool age children, which leads to the improvement of memory and growth, a reduction of anxiety, and the enhancement of intellectual performance later in life.

Additionally, the human brain is known to undergo postnatal development with the obvious maturation and reorganization of several structures, such as the hippocampus and cerebral cortex. It has been reported that this postnatal development occurs through neurogenesis, which occurs predominantly during childhood, and this development can also extend into adolescence and even through adulthood. Empirical, but striking, evidence supporting this concept was provided by an experiment that was conducted on postmenopausal women; those who received honey showed improvements in their immediate memory but not in immediate memory after interference or in delayed recall. In another study, the normal diet of two-month-old rats was supplemented with honey, and their brain function was assessed over a one-year period. Honey-fed rats showed significantly less anxiety and better spatial memory throughout all stages compared with the control group of rats. More importantly, the spatial memory of honey-fed rats, as assessed by object recognition tasks, was significantly greater during later months.

According to Ayurveda honey is sweet and astringent in taste, cold in potency and it has properties like *Stroshodhan*, *Yogavahi* and *Medhya*. Due to its *Yogvahi* property it can augment the activities of all the drugs given with it.

#### Action of Ghruta

*Ghruta* has important medicinal value in Ayurvedic texts. It increases mental ability and it enhances the function of drug added with it. It helps in growth and development of child. It also provides nutrition to new-born until lactation starts properly. Medicated ghee, one of the potent poly herbal dosage forms has been prescribed to treat different CNS disorders. These lipid base formulations might have potential to cross blood brain barrier and show beneficial effects on brain tissue.

*Vachadi Ghruta* is one of the medicated ghee formulations claimed in Ayurved to improve cognition (intellect and memory). Eight herbal drugs of *Vachadi Ghruta* have been reported for their Antipsychotic, Anti-stress, Antidepressant, and Nootropic activities. It



is assumed that synergism of these herbal drugs in preparation of *Vachadi Ghruta* and extraction of lipid soluble extractives of these drugs in *Go Ghruta* (Cow Ghee) may show cumulative positive effect on cognition and helps to prevent neuropsychiatric disorders. Vehicle used in preparation of *Vachadi Ghruta* is *Go Ghruta* which makes the preparation highly lipid soluble, then easily crosses blood brain barrier. Thus, helps to carry active components to specific target site (CNS). Ayurveda has considered ghee to be the healthiest source of edible fat possesses beneficial properties and facilitate the positive effect of herbal drugs added to it in preparation of medicated ghee. It is well documented that *Go Ghruta* promotes longevity and protects normal functioning of body entities as well intellect and memory.

#### Critical Review of *Vachadi Ghruta*<sup>[14]</sup>

Ayurvedic pharmacology explains actions of each ingredient of *Vachadi Ghruta* according to their properties. These drugs possess *Ushna* (hot), *Teekshna* (penetrating) properties and *Vata- Kaphashamak* activities. As per ayurvedic theory it is said that the cumulative effect of these ingredients is seen in final product i.e., *Vachadi Ghruta*. Hence probably *Vachadi Ghruta* is useful in the treatment of memory impairment occurred due to *Kapha-Vata* dominance and can be used to improve intellect and memory. Ghee is included in *Chatushsneha* which is "*Sarvasnehottama*" (excellent amongst three other sources). Ghee has specific property i.e., "*Samskarasya-Anuvartanat*" means enhances its properties along with the properties of other drugs mixed with ghee without losing its own natural properties. Cow ghee has its own importance amongst the ghee of other animal ghee drugs.

#### Activity profile of *Vachadi Ghruta* ingredients<sup>[15,16,17]</sup>

Ingredients	Activity
<i>Apamarg</i>	Antioxidant, antidepressant, immunomodulation, anti-inflammatory
<i>Guduchi</i>	Antioxidant, antipsychotic, immunomodulatory

<i>Haritaki</i>	Antitress, antioxidant, memory enhancer
<i>Shankhapushpi</i>	Nootropic, anticonvulsant, antioxidant
<i>Shati</i>	Nootropic, immunomodulatory
<i>Shunthi</i>	Antidepressant, antipyretic, anti-inflammatory, analgesic, hypoglycaemic, memory enhancer, Nootropic activity
<i>Vacha</i>	Antidepressant, antistress, memory enhancer, antioxidant, antibacterial
<i>Vidang</i>	Antidepressant, hepatoprotective

Eight ingredients of *Vachadi Ghruta* maximally have action on CNS as nootropic, memory enhancer, antidepressant and antioxidant. Thus, it is interpreted that as a cumulative effect *Vachadi Ghruta* prepared with all these ingredients may have all these activities.

#### CONCLUSION

A critical analysis of all available facts suggest very prominently that *Swarna Bhasma* is a wonder drug of Ayurveda which may be calibrated on parameters of contemporary science as researchers are adding new substantiated vision in case of Gold compounds all across globe in service of humanity. Learning and memory are the most exclusive and basic functions of the brain. Synaptic plasticity is thought to be crucial for information processing in the brain and underlies the processes of learning and memory. Honey has an appreciable nutritional value. Raw honey possesses anxiolytic, antinociceptive, anticonvulsant, and antidepressant effects and improves the oxidative status of the brain. *Vachadi Ghruta* possess a tremendous pharmacological and therapeutic potential. The reason behind the use of these ingredients of *Vachadi Ghruta* is justified from the research findings of various experimental studies on both human beings and animals. *Vachadi Ghruta* and its ingredients are proved to possess Nootropic, Anticonvulsant, Antidepressant, Antiepileptic, Antipsychotic, Antistress, Antioxidant, Immunomodulatory, Anticancer, Cardioprotective, Hepatoprotective, and many other therapeutic uses which are still to be explored.

**Ghruta Murchana**



**Kwath**



**Ghruta Nirmana**

**Vachadi Ghruta Nirmana**



**Raw Material**



**Kwath Nirman**

**Vachadi Ghruta Parikshan**



**Shabda Pariksha**



**Varti Parikasha**



Vachadi Ghrita

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