



REVIEW ARTICLE

FORMULATION OF SWARNAMRITAPRASHANA - A NOVEL AYURVEDA ELECTUARY

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ABSTRACT

Swarnamritaprashana, is a modified form of *lehana* (traditional gold licking) namely *Swarnaprashana*. Children are delicate by nature and have immature immune mechanisms. *Swarnaprashana* practiced in yester years was specific to boost overall health, activate immunity and with a specific goal to achieve any of memory, intellect, voice, complexion, better digestive capacity etc. Thus, the selection of herbal medicine in *Lehana* was condition specific. Traditionally, *swarnaprashana* is administered by rubbing gold on stone with little water and mixing with ghee and honey. *Swarnamritaprashana* is a lickable poly herbal formulation in the base of ghee and honey with Gold in the form of bhasma (calcined ash). It is developed to avoid the exercise of daily rubbing, mixing and most importantly to suit the health concerns of children. *Broad spectrum actions* of *Swarnamritaprashana* may be attributed to its constituent's namely *Mandukaparni* (*Centella asiatica*), *Shankhapushpi* (*Convolvulus pluricaulis*), *Yashtimadhu* (*Glycyrrhiza glabra*), *Amrita* (*Tinospora cordifolia*), *Vacha* (*Acorus calamus*), *Jatamansi* (*Nardostachys jatamansi*) along with *Ashvagandha* (*Withania somnifera*), *Pippali* (*Piper longum*) and *Swarna Bhasma* (incinerated gold), ghee and honey. This can be readily administered to child in the required dose. This article highlights the ingredients, method of preparation, and probable mechanism of action along with pilot researches that upheld nootropic, growth and development promoting, immune promoting, recurrent respiratory illness prevention activity of *Swarnamritaprashana*.

Keywords: *Ayurveda*, gold licking, immune booster, nano gold therapy, nootropic, *Swarnamritaprashana*

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INTRODUCTION:

Ayurveda, the Indian system of medicine is the first recorded medical science widely practiced in India since ancient times. In fact, it is the way of life for healthy and diseased individuals. The medical prescriptions of Ayurveda are highly specific and individualised based on the prakriti (the basic genetic makeup of an individual).^[1] Herbal and herbomineral single and compound formulations are used as medicine in Ayurveda along with condition specific therapeutic food and activities. Emphasizing on the preventive and promotional health of community Ayurveda advocates certain practices like *Abhyanga* (massage), *Nasya* (Nasal medications), carminative medicines etc for toning general health. When a precise benefit is aimed the practices prescribed are explicit and termed as *Kamyas Rasayana*. Measures specifically said as *Medhya* (Nootropic), *Balya* (strength promoting), *Vrishya* (Aphrodisiac), *Hridya* (cardiotonic), *Swarya* (good for voice) and so on are *Kamyas Rasayana*. *Swarna prashana* (gold licking with specified adjuvant and herbs) is one such.

Swarnaprashana is novel traditional practice of administering gold rubbed with water on clean stone and mixing it along with ghee (clarified butter), honey is inventively elaborated for children. Specific medicinal plants also mentioned in *Swarnaprashana*.

Gold administered in such fashion boost *Medha* (intellect), *Agni* (digestion and metabolism), *Bala* (strength), *Ayushya* (healthy long life), *Mangalam* (auspicious), *Punyam* (bestow), *Vrishyam* (aphrodisiac), *Varnyam* (complexion), *Grahapaham* (prevents infections and behavioural problems). If this is continuously given for one month, the child becomes *Parama Medhavi* (Highly intellectual) and *Vyadhibhih na cha drushyate* (do not suffer from frequent illnesses). The child will become *Shrutadhara* (excellence in retention capacity) if it is given continuously for six months.^[2]

In children, problem of repeated infections, nutritional depletion, antibiotic resistance, behavioural and psychological morbidity including attention deficit hyperactivity, autism, behavioural disorders, poor school performance and metabolic disturbances remains to be major concerns. In addition to this, the pressure of the competitive world, compulsions and expectations to excel have inducted a stressful life for children. This shall intern influence up on higher incidence of non-communicable diseases. Despite the efforts to curtail them through vaccination, nutritional programmes, education, newer vaccines and drugs, the childrens' health issues seems to be never ending. With due considerations to these, it was intended to reintroduce the age old

tradition of *swarnaprashana* to suit the current needs. Thus *Swarnamritaprashana* was formulated.

MATERIALS AND METHODS:

Swarnamritaprashana is a lickable poly herbal formulation with gold in the form of bhasma (calcined ash). It is an indigenous formulation developed by department of Kaumarabhritya (Ayurveda Paediatrics) of Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital (SDMCAH), Tanniruhalla, Hassan in consultation with experts of Rasashastra and bhaishajya kalpana (Ayurveda pharmaceuticals). *Swarnamritaprashana* is extensively used to boost higher mental faculties, immunity in specific and overall health of children in general. The ingredients of *Swarnamritaprashana* include well known nootropic herbs of Ayurveda namely *Manduka parni* (*Centella asiatica*), *Shankhapushpi* (*Convolvulus pluricaulis*), *Yashtimadhu* (*Glycyrrhiza glabra*), *Amrita* (*Tinospora cordifolia*), *Vacha* (*Acorus calamus*), *Jatamansi* (*Nardostachys jatamansi*) along with *Ashvagandha* (*Withania somnifera*), *Pippali* (*Piper longum*), *Swarna bhasma* (incinerated gold) in the base of ghee and honey.

METHODOLOGY OF PREPARATION OF SWARNAMRITAPRASHANA:

Plant materials

Required herbal raw materials such as stem of *Amrita* (*Guduchi*) and powders of whole plant of *Mandookaparni* and *Shaknha pushpi*, root powders of *Yastimadhu*, *Vacha*, *Jatamansi* and *Ashvagandha* and fruit powder of *Pippali* were collected from the SDMCAH Hassan dispensary and authenticated at Teaching pharmacy of SDMCAH Hassan

Preparation of *Swarnamritaprashana*

As per the descriptions of preparation of medicated ghee, ^[3] *Amrita Ghrita*, was prepared by adding 50 parts of ghee (Nandini Ghee, Karnataka milk federation undertaking) and 200 parts of *Amrita Kashaya* (Decoction of *Amrita* prepared by adding 50parts of coarse powder of stem of *Amrita* with 800ml of water boiled on mild flame and reduced to 200ml) and fine powders of above mentioned drugs in the prescribed quantity (12.5 parts in total). Once the preparation attains room temperature, *Amrita Ghrita* was mixed with 50 parts of *Madhu* (AGMARK Honey) and *Swarna bhasma* (1.2parts) procured from Dhutapapeshvar company and were thoroughly triturated to attain consistency of linctus and stored in air tight glass containers.

Pharmacological properties of *Swarnamritaprashana*

The therapeutic activity of any compound medicinal formulation depends up on the constituent drugs and their specific action. The pharmacological properties of

each ingredient based on rasapanchaka along with their scientific identity and the proportion in the preparation are summarized in the table 1.

Table 1: Pharmacological properties of Swarnamritaprashana

Sl no	Drug	Rasa	Guna	Virya	Vipaka	Effect on Dosh
1	<i>Amrita</i>	<i>Tikta</i>	<i>Guru, snigdha</i>	<i>Ushna</i>	<i>Madhura</i>	Alleviates <i>Tridosha</i>
2	<i>Brahmi</i>	<i>Tikta, Kashaya</i>	<i>Laghu</i>	<i>Shita</i>	<i>Madhura</i>	Alleviates <i>Kapha</i> and <i>Pitta</i>
3	<i>Shankhpuspi</i>	<i>Tikta, Katu Kashaya</i>	<i>Snigdha Pichila Sara</i>	<i>Shita</i>	<i>Madhura</i>	Alleviates <i>Tridosha</i>
5	<i>Yastimadhu</i>	<i>Madhura</i>	<i>Guru Snigdha</i>	<i>Shita</i>	<i>Madhura</i>	Alleviates <i>Vatapitta</i>
6	<i>Vaccha</i>	<i>Katu, Tikta</i>	<i>Laghu Ushna</i>	<i>Ushna</i>	<i>Katu</i>	Alleviates <i>Kapha</i>
7	<i>Jatamamsi</i>	<i>Tikta, Kashaya</i>	<i>Laghu</i>	<i>Shita</i>	<i>Katu</i>	Alleviates <i>Tridosha</i>
8	<i>Ashwagandha</i>	<i>Tikta, Kashaya</i>	<i>Laghu</i>	<i>Ushna</i>	<i>Madhura</i>	Alleviates <i>Vata</i> and <i>Kapha</i>
9	<i>Pippali</i>	<i>Katu</i>	<i>Laghu Snigdha, Teekshna</i>	<i>Anushna shita</i>	<i>Madhura</i>	Alleviates <i>Kapha</i> and <i>Vata</i>
10	<i>Ghrita</i>	<i>Madhura</i>	<i>Snigdha Soumya</i>	<i>Shita</i>	<i>Madhura</i>	Alleviates <i>Pitta</i> and <i>Vata</i>

11	<i>Madhu</i>	<i>Madhur, Kashaya</i>	<i>Ruksha Shita Guru</i>	<i>Shita</i>	<i>Madhura</i>	Alleviates <i>Pitta-Rakta- Kapha</i>
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Thus, Pharmacological properties of *Swarnamritaprashana* may be *Madhura, Tikta Kashaya Rasa, Madhura Vipaka, Sheeta Veerya* and guna being laghu, snigdha, soumya and Tridoshashamaka (alleviating tridosha). Majority ingredients like *Mandooka parni, Shankhapushpi, Vacha, Guduchi, Yashtimadhu, Jatamansi* are said to be *Medhya* (nootropic) by *Prabhava* (specific action).^[4] Similarly, *Ashvagandha, Guduchi, and Pippali* are *Rasayana* and *Balya* in nature. Thus same *Prabhava* may be attributed to it. Further, these qualities of individual drugs are being retained in the ghee, the base of formulation owing to its quality of *Samskara Anuvartana* (capacity to imbibe and retain the qualities of constituent drugs).^[5] Further, Ghee itself is also *Medhya*.

EVIDENCE BASED APPROACH:

The individual drugs used in the formulations of *Swarnamritaprashana* have already been proven for their myriad actions and clinical utility.

AMRITA (*Tinospora cordifolia*):

Amrita is used in the form of juice of whole plant, decoction, powder and *Satwa* (starch extract of stem). Its root is known for

its anti stress, anti-leprotic and anti-malarial activities.^[6-7] Classes of chemical constituents are alkaloids, diterpenoid lactones, glycosides, steroids, sesquiterpenoid, phenolics, aliphatic compounds and polysaccharides.^[8] Neuroprotective and ameliorative properties are due to their antioxidant and trace element contents.^[9] *Tinospora cordifolia* is known to be a rich source of trace elements (Zinc and Copper) which act as antioxidants and protects cells from the damaging effects of oxygen radicals generated during immune activation.^[10] It increases the blood profile and has lead scavenging activity.^[11] *Tinospora cordifolia* has been claimed to possess learning and memory enhancing,^[12] antioxidant,^[13-14] and anti-stress activity.^[15] Mechanism of cognitive enhancement is by immunostimulation and increasing the synthesis of acetylcholine, this supplementation of choline enhances the cognition.^[16] Therapeutic actions of *Guduchi* may be attributed to its antioxidant^[17-18] and immunomodulatory properties.^[19]

SWARNA (GOLD):

Gold has a long history of use.^[20] The therapeutic utility of gold is known since the period of *Charaka* and *Sushruta* where in, the

gold has been a part of medicine right from the care of just born baby (5000BC).^[21] The preferred therapeutic form of gold *Swarna Bhasma* (ash of gold) especially for internal administration.^[22]

The *Swarnabhasma* has been scientifically proved for free radical scavenging activity,^[23] rheumatoid arthritis, inflammatory diseases, asthma, immunological disorders, diabetes mellitus, and nervous system diseases.^[24-32] and also in those caused due to fear, sorrow, anger and mental stress.^[33] Recent research has revealed that gold nanoparticles exhibit size-dependent absorption through rat skin and intestine, with smaller particles (~15 nm) absorbed more than larger particles (>100 nm).^[34] Nanoparticles can also be absorbed through sublingual route directly into the blood stream.^[35] Therefore, it can be presumed that some *Swarna bhasma* particles may get absorbed through the sublingual route directly into the blood stream.

In modern medicine, gold nanoparticles find significant applications in drug delivery as they are capable of encapsulating active drugs and targeting.^[36] *Swarna bhasma*, a therapeutic form of gold metal of nano-sized particles found to be with a crystallite size of 28–35 nm and was 90% pure gold as visible from X-ray diffraction and elemental analysis.^[37] In this form gold can

reach the affected site on oral administration via intestinal absorption and possibly can release Au(I) ions in a sustained manner required for therapeutic action.^[38] Further, *Swarnabhasma* particles showed high compatibility with blood as demonstrated their ability to open the tight junctions thus facilitating the *bhasma* particles to be absorbed into the systemic circulation and comes in direct contact with blood. Absorption of gold nanoparticles occurs in the small intestine by absorption through single, degrading enterocytes in the process of being extruded from a villus and gold nanoparticles typically less than 58 nm in size reaching various organs through blood.³⁷ *Swarnabhasma* has already been proven for anti-amnesic activity,^[39] anti oxidant,^[31,40] free radical scavenging activity^[41] unique anti-angiogenic, anti tumor properties^[42] anti Cataleptic, anti-anxiety and anti-depressant activity,^[30] analgesic and immune enhancing activities.^[43-44] Atomic absorption spectrometric analysis of *Swarna bhasma* demonstrated gold (20.34%) along with trace elements like iron (39.09%) and some other elements like arsenic (0.17%), barium (0.33%), calcium (1.96%), magnesium (2.08%), lead (0.03%), zinc (74 ppm), nickel (75 ppm). Further, although the *bhasma* has been prepared from compounds containing lead and arsenic, the final product retained only a

very small amount of these two metals {arsenic (0.17%) and lead (0.03%).^[41] These may be the reason for wide range of therapeutic application of *Swarnabhasma*.

BRAHMI (*Bacopa monniera*):

Bacopa monniera is a well-known nootropic plant reported for its tranquilizing,^[45] sedative action,^[46] cognitive enhancer,^[47] hepatoprotective,^[48] memory enhancer^[49] and antioxidant actions.^[18,50-51] Neuroprotective activity may be ascribed to reactive oxygen species scavenging property.^[52] *Bacopa monniera* is a saponin rich plant.^[53] Bacosides are the main active nootropic principle present in the alcoholic extract of the plant.^[54] It is mainly utilized in the treatment of memory and attention disorders.^[55] Triterpenoid saponin isolated from *Bacopa monniera* showed thyroid T₄ hormone stimulating activity in animals in high doses.^[56]

SHANKHAPUSHPI (*Convolvulus pleuricaulis*):

Highly regarded as *Medhya* (intellect promoter).^[57] Important chemical principles are microphylllic acid, shankhapushpin, kaempferol-kaempferol-3-glucoside, 3,4 dihydroxycinnamic acid, sitosterols. Neuroprotective and intellect promoting activity implicated to free radical scavenging and antioxidant property.^[58] Previous clinical studies have already proven its effectiveness on *Manasa-mandata* (mental retardation),^[59] *Chittodvega* (anxiety disorders).^[60-61]

Shankhpushpi has potent depressive action in mice^[62] and highest inhibitory activity against *Helicobacter muridarum*.^[63]

YASTIMADHU (*Glycyrrhiza glabra*):

Fine powder of dried root is used internally with milk for therapeutic purpose as *Medhya*.^[57] The roots and rhizomes of *Glycyrrhiza glabra* is an efficient brain tonic; it increases the circulation into the CNS system and balance the sugar levels in the blood.^[64] Multidimensional activities of *Yashtimadhu* may be attributed to glycyrrhizine and flavonones.^[65] The roots and rhizomes of *Glycyrrhiza glabra* has been studied with respect to spatial learning and passive avoidance,^[66] preliminary free radical scavenging,^[67] cerebral ischemia^[68], memory enhancing activity in dementia,^[69] and antioxidant capacity towards LDL oxidation^[70] and antihypoxic effects induced by sodium nitrite.^[18,71]

VACHA (*Acorus calamus*):

Rhizome is useful part having *Medhya* quality. It has been used in Indian and Chinese system of medicine for hundreds of years to cure diseases especially the central nervous system (CNS) abnormalities.^[72-75] Active chemical principles are α -asarone, elemicine, cis-isoelemicine, cis and trans isoeugenol and their methyl ethers, camphene, P-cymene, b-gurjunene, a-selinene, b-cadinene, camphor, terpinen-4-ol, a-terpineol and a-calacorene,

acorone, acronone, acoragermacrone, 2-deca-4, 7 dienol, shyobunones, linalool and preisocalamendiol. Acoradin, galangin, 2, 4, 5-trimethoxy benzaldehyde, 2,5- dimethoxy benzoquinone, calamendiol, spathulenol and sitosterol are also present. [76-77] It has been proved for its analgesic and anticonvulsant, [78] hepatoprotective, [79] antioxidant, [80-81] antimutagenic, [82] sedative and hypothermic effects. [83] Good in clearing speech to the children [84-85] and useful in schizophrenic psychosis. [86]

JATAMAMSI (*Nardostachys jatamansi*):

Rhizome is used for medicinal purposes as it is *Bhutaghna* or *Manasa Doshahara* (relieves of psychiatric problems) and *Medhya*. [87] It is regarded as *Rasayana* (rejuvenative to the mind), *Nidrajnana* (promotes sleep), *Manasrogaghna* (alleviates mental diseases), *Pachana* (digestive), *Kasa Shwasahara* (alleviates- coughs and breathing difficulties), *Kushtaghna* (Stops skin diseases and itching), *Dahaprashamana* (Stops burning sensations), *Varnya* (Benefits complexion) and *Roma sanjanana* (hair growth promoter). [88] Roots and rhizomes of *Nardostachys jatamansi* are used to treat hysteria, epilepsy, and convulsions. [89] The decoction of the drug is also used in neurological disorders, insomnia and disorders of cardiovascular system. [90] 93 Rhizomes contain a terpenoid ester, nardostachysin I. [91] It is proven to improve learning and memory

in mice [92] and also to enhance biogenic amine activity. [93] An acetone extract of *N. jatamansi* has shown significant inhibition of benzoyl peroxide-induced cutaneous oxidative stress, toxicity, and ear oedema in mice. [94] Herb widely reviewed [95] and proven for anticonvulsant activity, [96] ntiparkinson's activity, [97] 100 tranquillizing activity, [98] hepatoprotective, [99] neuroprotective, [100] antioxidant, [101-02] anti-diabetic activity, [103] antiarrhythmic and antihypertensive activity, [104] Anti asthmatic activity, [105] nematocidal activity [106] antibacterial activity, [107] and anti fungal activities. [108-09]

ASHWAGANDHA (*Withania somnifera*):

Most used *Rasayana* herb in Ayurveda. It is clinically used for the treatment of general debility, consumption, nervous exhaustion, insomnia, loss of memory, and so on. [110] Chemical constituents include alkaloids (isopelletierine, anaferine, cuseohygrine, anahygrine, etc.), steroidal lactones (withanolides, withaferins) and saponins. [111] *Withania* has been reported as promising anti-cancer drug candidate due to its cytotoxic, [112] apoptotic, [113] anti-metastatic [114] anti-mitotic [115] and anti-angiogenesis properties. [116] wide range of central nervous system (CNS) pathology in rodents. [117] These include catalepsy, cognitive and memory impairment, orofacial dyskinesia, [118] stress, Parkinson's disease (PD), Huntington's disease (HD),

Alzheimer's disease (AD), cerebral stroke, epilepsy, excitotoxicity, in sleep disturbed mice, chronic fatigue syndrome, streptozotocin induced oxidative stress, copper-induced oxidative stress and rotenone-induced oxidative stress.^[119-120]

PIPPALI (*Piper longum*):

It is one of the most widely used medicines in Ayurveda either singly or in compound formulations. Reportedly to be good in the treatment of *Kasa* (cough), *Shvasa* (asthma), *Rajayakshma* (tuberculosis), arthritis and gut related conditions. It is known for its immune modulatory,^[121-24] anti oxidant,^[125] anti tubercular,^[126-27] anti cancer,^[128-29] hepatoprotective,^[130-32] anticholestrlaemic,^[133-34] anti inflammatory,^[135] anti amoebic,^[136-139] anti asthmatic,^[140-41] anti microbial^[142-43] and anti Diabetic activity.^[144-45] It is also highly regarded as bio availability enhancer.^[146-50]

GHEE (*Butyrum departum*):

Ghee is best among the sneha dravya (Unctous substances). It is said to be par excellence because of its power to assimilate effectively the properties of substances without giving up its own properties. Ghee itself is a *Rasayana* and hence conducive to *Rasa*, *Shukra* and *Oja*, the three primary factors for *Bala* (immunity) of a person. It has sweet taste, *Avidahi* (soothing nature) and adds to clarity of speech and complexion.⁵

Regarded congenial to consume since birth. Due to its *Sneha guna*, sweet and cold properties it alleviates *Vata* and *Pitta* respectively. It can even check kapha when processed with specific medicines.^[151] Ghee is best indicated for persons desirous of good eye sight, longevity, strength, complexion, voice, nourishment, progeny, tender and lustrous body, ojus (immunity), memory, intelligence, digestive power, wisdom, proper functioning of senses and especially in children and aged.^[152] Major chemical constituents include Triglycerides (97.98%), Diglycerides (0.25 -1.5%), Monoglycerides (0.16 - 0.038%), Ketoacid glycerides (0.015 - 0.018%), Glycerylestes (0.011 - 0.015%), Free fatty acid (0.1 - 0.44%), Phospholipids (0.2 -1%) and Sterols (0.22 - 0.4%). It is rich in Fat soluble vitamins like Vit. A (2500 I.U. /100 g), Vit. D (8.5x 10.7 gm/100 g), Vit. E (24 x10.3g/100g) and Vit.K (1.0 x 10.4 g /100 g). Digestibility coefficient of ghee is 96%.

HONEY:

Honey is yellowish or yellowish brown, thick, syrupy liquid. It is a sugar secretion deposited in honey comb by bees *Apis mellifere*, *Apis dorsata* and other species of *Apis*. Widely used in traditional Indian food and Ayurveda. The positive effect of honey in infant are attributed to its effects on the digestion process, effect of oligosaccharides in honey on *B. bifidus*,^[153] and trace elements in

honey and variety of protective and immunogenic properties.^[154] Honey is proven experimentally for its anti bacterial, antifungal, anti inflammatory anthelmintic, anti cancer, wound healing properties.^[155] It is both immune stimulant and immune suppressive. Honey increase proliferation of B- and T-lymphocytes and neutrophils in vitro.^[156] Honey exhibits probiotic effects by building up bifidus and lactobacillus flora in the gut. Based on data from previous researches, it may be postulated that honey is neuro protective, memory enhancing, anti oxidant, anxiolytic, anticonvulsant and antidepressant. Thus it may be used as nutraceutical. Honey seems to potentiate the antioxidant action of herbs.^[157] Thus, Honey is regarded as preferred adjuvant especially while administering medicine to children. Further, feeding honey to infants improves memory and growth, reduce anxiety and enhance the children's performance in later life. They also suffered less frequently from diarrhoea, and their blood contained more haemoglobin.^[158] Infants exposed to a honey regimen had a better weight increase, improved calcium uptake and during the regimen were less susceptible to diseases than infants fed normally or infants given blood building agents.^[155]

DISCUSSION:

Swarnamritaprashana is an electuary for children, formulated based on the

principles of lehana with an aim to boost overall health and performance in general also intellect and immunity in specific. The ingredients of *Swarnamritaprashana* are individually validated for their specific action in experimental and clinical trials. Thus, *Swarnamritaprashana* proposed to meet the benefits of *Swarnaprashana* described in the context of *Lehana*.² The dose of *swarna bhasma* in *Swarnamritaprashana* was computed based on preferred therapeutic dose in adults is 1/8-1/4 ratti^[159] (1ratti=125mg) using suitable formula to calculate pediatric dose. The pilot studies done so far have not reported any adverse events following administration of *Swarnamritaprashana*. In a pilot study, 30 days continuous administration of *Swarnamritaprashana* showed marked improvements in manifestations of kasa namely cough, tonsillitis, ronchi, sleep disturbance (all $p < 0.001$) and pharyngitis ($p < 0.05$).^[160] Yet another study to evaluate the effect of 200mg of *Svarnamritaprasha lehana* once a day for 3months on growth and development of children below 24 months demonstrated significant results on all anthropometric parameters like height, weight, head circumference, chest circumference and midarm circumference (all $p < 0.001$). While assessment on development using developmental assessment scale for

Indian infants (DASII) documented significant results in both mental and motor developmental quotients ($p < 0.00$) as compared to normal control. There was significant improvements in Hb% value ($p < 0.003$).^[161] *Swarnamritaprashana* given for continuous one month found to be Effective on *Pratishyaya (Rhinitis)* and its recurrence.^[162] Experimental studies done elsewhere on *Swarnaprashana* demonstrated Nootropic, anti- AChE activity.^[163] It also been documented for enhancing digestive power, weight gain and improvement in general health.^[164] yet another toxicity study with administration *swarna bindu prashana* for 90days in male albino rats weighing 160-200g *Swarnaprashana* did not elicit any significant changes on biochemical and histopathological studies.^[165]

There exists a practice of administration of similar *prashana* formulations being used in clinical practice with slightly varying constituents, dose and different age groups.^[166] These are yet to be explored with scientific acumen and documented for meticulous practice of *swarnaprashana*.

CONCLUSION:

Swarnamritaprashana, is electuary formulated on unique native Indian medicine and gold licking practices for health promotion and disease prevention in children. It is widely

practiced as immune booster, nootropic and general health toner and hailed for its multi dimensional therapeutic applications. The ingredients of the formulation are individually proven for their pharmacological and therapeutic efficacy. Further, researches on mode of action of *Swarnamritaprashana* on target tissues and its pharmacodynamics are need of the hour. Exploratory studies on various dosage forms, administration schedules and its effectiveness on specific clinical conditions needs to be published for wider acceptance in the community.

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