

## LEHANA AS IMMUNOMODULATORY IN CHILDREN- A REVIEW

Singh Sadhna<sup>1\*</sup>, Singh Tribhuwan<sup>2</sup>, Dwivedi Shivnarayan<sup>3</sup>

<sup>1</sup>Ayurveda Medical Officer, Govt. Ayurveda Dispensary Tohda, District-Raipur,  
Chhattisgarh.

<sup>2</sup>Assistant Professor, Department of Panchakarma, Shri N.P.A. Govt. Ayurvedic College  
Raipur, Chhattisgarh.

<sup>3</sup>Ayurveda Practicer, Near Rohani Puram Gate, Daganiya, DDU Nagar, Raipur, Chhattisgarh.

Article Received on 15 February 2026,  
Article Revised on 05 March 2026,  
Article Published on 16 March 2026,

<https://doi.org/10.5281/zenodo.19088005>

**\*Corresponding Author****Singh Sadhna**

Ayurveda Medical Officer, Govt.  
Ayurveda Dispensary Tohda,  
District-Raipur, Chhattisgarh.



**How to cite this Article:** Singh Sadhna<sup>1\*</sup>, Singh Tribhuwan<sup>2</sup>, Dwivedi Shivnarayan<sup>3</sup>. (2026). Lehana As Immunomodulatory In Children- A Review. World Journal of Pharmaceutical Research, 15(6), 1728-1738.

This work is licensed under Creative Commons Attribution 4.0 International license.

**ABSTRACT**

*Lehana* is one of the unique concepts of Kaumarabhritya. The process of licking and gulping it is called *Lehana*. Consistency of *Lehana* is semi-solid and sticky it is processed with honey, sugar and other substance to make it palatable. Its multitactorial multidimensional approach like physical, mental and immune-modulating effect has been described by Acharya Kashyapa and other Acharya. A strong immune system is vital for longevity and healthy life of child. Infancy and childhood period is very delicate and important period of life because of healthy adult life depend on it. In this period children are more prone to infection due to low immunity or undeveloped immune system. Immuno-modulator can be defined as a drug or substance, which can stimulate the immune system in a specific or non specific manner either innate or adaptive

response. In various Ayurvedic texts, the concept of immunity has been interpreted as *Vyadhikshamatva* and Concept of *Vyadhikshamatva* is described as a state equilibrium of *Kapha*, *Bala* and *Oja*. To promote and maintain this equilibrium so many formulations described in various texts of Ayurveda, which is provide immunity against infections. *Swarna* is proved for its immuno-modulatory effect. Maximum *Yogas* of *Lehana* contains *Swarna*.

**KEYWORDS:** *Lehana*, Immuno-modulator, *Vyadhikshamatva*.

## INTRODUCTION

Management for immunity was also described in Ayurveda classics thousands of years ago in the form of countless formulations for children and adults; as like *Rasayana*, *Lehana* and *Ojo-Vardhaka* remedies. *Lehana* is one of the unique concept of Kaumarabhritya (Ayurveda Pediatrics).<sup>[1]</sup> and one such traditional special formulation, mentioned in Ayurveda classics. The word meaning of *Lehana* is licking or lickables and its consistency is semi-solid or sticky form.<sup>[2]</sup> A variety of medicinal preparation. It is processed with honey, sugar and other substance to make it palatable. *Lehana* not only promotes physical and mental health, but also acts as a supplementary food and protecting from various infections along with improving intellect and speech (delayed milestone).<sup>[3]</sup> It helps in strengthening the body's immune mechanism.<sup>[4]</sup>

Acharya Kashyapa had explained in detail about *Lehana*.<sup>[1]</sup> According to Dalhana, *Lehana* should be continued for one to two years. The process of licking and gulping it is called as *Lehana*. The substance subjected for *Lehana* is called *Lehya*, this concept is also adopted in drug delivery for neonates and infants where the proposed drug is mixed with any of honey, sugar, ghee, etc made into lickables and fed to child. *Swarna Prashana* is one such medicine, where *Swarna* and other medicines are mixed with honey and administered to children with the aim of desire benefits.<sup>[1]</sup> In Kashyapa Samhita a separate chapter called *Lehadhyaya* is devoted to explaining various forms of *Lehana*.

Immunomodulators are considered now as one of the most potent tools in the management of health and disease by modern medicine. The basic concept of immunomodulation not only existed in Ayurveda but is being really practiced by the Ayurvedists for centuries. In Ayurvedic practice the objective of immune enhancement is achieved through the use of the *Rasayana*, *Lehana* and *Ojo-Vardhaka* remedies. Gold is one of the noble metals being used in continuity to increase the vitality and immunity.<sup>[5]</sup> *Swarna Bhasma* promotes immunity through phagocytosis and found to be effective in small doses.<sup>[6]</sup> Several studies on gold nano-particles (GNP) reported that it conjugates with antigen to influence activation of t-cells.<sup>[7]</sup> In medicine, most interesting part is the use of nano-particles to enhance drug delivery system.<sup>[8]</sup>

## LEHANA

The word *Lehana* itself indicated its consistency i.e. semisolid form. The drugs for *Lehana* should always be mixed with *Madhu* and *Ghrita*. Kashyapa has given special emphasis on

*Lehana Karma* and a separate chapter called *Lehadhyaya* is in *Sutra-Sthana*. The children of a mother who are having no breast milk, deficient milk, or vitiated milk of parturient women (mother) or of a wet –nurse of similar condition who have predominance of *Vata* and *Pitta* but not *Kapha*, who do not get satisfied with the breast milk and cry in spite of repeated sucking, children who do not sleep at night, eat too much, pass scanty urine and faeces; children who have increased digestive power, though free from disease yet scraggy, have delicate body part and emaciated, do not pass urine and faeces even for three days; such type of children should be prescribed *Lehana*.<sup>[9]</sup>

## Various Compound Formulations of Lehana Mentioned in Classics

### 1. Kashyapa Samhita

*Swarna Prasana* (administration of Gold *Bhasma*)- Pure gold (in small quantity) is rubbed in water on a clean stone & given with honey and *Ghrita*, to the newborn result in promotion of health, ensures proper growth and development, provides complexion & strength (immunity), *Panchgavyaghrita*, *Brahmighrita*, *Abhayaghrita*, *Samvardhanaghrita* (effective in children with delayed milestones) (Kashyapa Samhita Sutrasthana, Lehaadhyaya, p.5-7).<sup>[10]</sup>

### 2. Ashtanga Hridayam

*Swarnaghatita-Yoga*- Combination of *Vacha* (*Acorus calamus*) and *Swarnabhasma* with *Madhu* and *Ghrita* (body compactness, intellect, immunity and complexion enhancer) (Astanga Hridayam Uttarantra 1/47, p.885) etc.<sup>[11]</sup>

### 3. Sushruta Samhita

Described four recipes (containing gold) which provide general immunity, body resistance, helpful in growth & development & enhancing the intelligence. These are: (1) *Swarnabhasma* with *Kustha* (*Saussurea Lappa*), *Vacha* (*Acorus calamus*), *Madhu* & *Ghrita*. (2) *Swaranbhasma* with paste of *Brahmi* (*Bacopa monnieri*), *Shankhpushpi* (*Convolvulus pluricaulis*), with *Madhu* & *Ghrita*. (3) *Swaranbhasma*, *Arkpushpi* (*Pueraria tuberosa*), *Vacha* (*Acorus calamus*), *Madhu* & *Ghrita*. (4) *Swaranbhasma*, *Kaidarya* (*Azadirachta indica*), *Swetadurva* (*Cynodon dactylon*), *Ghrita*. (Sushruta Samhita Sharirsthana 10/72-74, p.113).<sup>[12]</sup>

### 4. Bhaishajya Ratnavali

*Kumarkalyan Ras*- Combination of *Rassindur*, *Muktapishti*, *Swarnbhasm*, *Abhrakbhasma*, *Lauhabhasma*, *Swarnabhasma* and *Ghritakumari-Swaras* (effective in children with jwara,

shwasaroga, vomiting, weakness, indigestion, immunity etc.) (Bhaishajya Ratnavali, 71/116-119, p.1088).<sup>[13]</sup>

### **Swarna (Gold) Bhasma**

*Swarna Bhasma* is *Hridya* (Heart tonic), *Vrishya* (aphrodisiac), improves intellectual power, *Rasayana* (rejuvenator) and alleviates increased *Doshas*.<sup>[14,15]</sup> It increases *Balya* (potentiality), *Kantikara* (complexion), *Ayushkara* (longevity), *Medha Smriti Mati Pradam* (intellect, memory and attentiveness).<sup>[16]</sup> It has been utilized as a therapeutic agent in the traditional Indian Ayurvedic medicine for *Yakshma* (tuberculosis), *Unmada* (schizophrenia), *Jwara* (fever), *Shoka* (grief), *Pandu* (anaemia), *Shwasa* (dyspnoea), *Kasa* (cough), *Krimi* (worm infestation), *Aruchi* (anorexia), *Chakshuroga* (ophthalmic disorders), *Visha* (poisoning), bronchial asthma, rheumatoid arthritis, diabetes mellitus, and nervous system diseases.<sup>[17]</sup> *Swarna Bhasma* is usually given orally mixed with honey, milk or Ghee.<sup>[18]</sup> Pharmacological review of *Swarna Bhasma* reveals that it possesses immune modulator, free radical scavenging, Anti-anxiety, Antidepressant, analgesic, anti-stress, Anti Cataleptic, and antioxidant activity.

### **IMMUNO-MODULATOR**

An immunomodulator can be defined as a substance, which can influence any constituent or function of the immune system in a specific or nonspecific manner including either innate or adaptive arms of the immune response.<sup>[19]</sup> They are a diverse array of recombinant, synthetic and natural preparations, often cytokines. Some of these substances, such as granulocyte colony-stimulating factor (G-CSF), interferons, imiquimod and cellular membrane fractions from bacteria are already licensed for use in patients. Others including IL-2, IL-7, IL-12, various chemokines, synthetic cytosine phosphate-guanosine (CPG), oligodeoxynucleotides and glucans are currently being investigated extensively in clinical and preclinical studies. Immunomodulatory regimens offer an attractive approach as they often have fewer side effects than existing drugs, including less potential for creating resistance in microbial diseases.<sup>[20]</sup>

### **Concept of Immuno-modulator in Ayurveda**

Immunomodulators are considered now as one of the most potent tools in the management of health and disease by modern medicine. In Ayurvedic practice the objective of immune enhancement is achieved through the use of the *Rasayana*, *Lehana* and *Ojo-Vardhaka* remedies. Ayurveda has propounded the concept of immunity as “*Vyadhikshamatwa*”.<sup>[21]</sup>

The word 'Vyadhikshamatva' is mentioned by *Acharya Charaka* while explaining about relation between *Hita-ahita ahara* and diseases. The author says that all *Doshas* are neither of equal strength nor all the bodies have enough resisting power for diseases equally.<sup>[22]</sup>

Ckakrajanidatta has interpreted the term *Vyadhikshamatwa* as *Vyadhibala Virodhitwa* i.e. antagonistic to the strength and virulence of the disease and *Vyadhyutpada pratibandhakatwa* i.e. the capacity to inhibit and bind the cause and factor of disease.<sup>[23]</sup>

The term *Vyadhi* is a synonym of disease and *Kshamatva* indicates the resistance or tolerance of the body to fight against the diseases. Thus it is the competency of an individual to prevent the onset of a disease or to resist the severity of an already manifested disease. Concept of *Bala*, *Balavardhaka-Bhava*, *Oja*, *Prakriti*, *Prakrita-Shleshma*, *Lehana-Samskara*, *Rasayana* and *Vajikarana* are explained in Ayurvedic classics which increase the *Vyadhikshmatva* of human being.<sup>[24]</sup>

In fact, one of the therapeutic strategies in Ayurvedic medicines is to enhance the body's overall natural resistance to the disease causing agent rather than directly neutralizing the agent itself. The use of herbs for improving the overall resistance of body against common infections and pathogens has been a guiding principle of Ayurveda.<sup>[25]</sup>

Such herbs possessing immunomodulatory effects are referred to as *Rasayana* in Ayurvedic classics. They are supposed to have the ability of protecting the body against external factors that induce disease. This implied resistance against disease may represent the modern concept of immunity.<sup>[26]</sup>

### **Role of Contents of *Lehana (Swarna Prashana)* as Immunomodulatory Effects**

**1. Action of *Swarna*-** *Swarna* has the properties like that of *Medhavardhanam*, *Agnivardhanam*, *Balavardhanam*, *Ayushyakara*, *Grahapaham* etc. These properties of *Swarna* can be made use to strengthen an individual.<sup>[27]</sup> Gold enhances memory power and immunity too. Oxide form of *Swarna* i.e. *Swarna Bhasma* is easily absorbable. *Swarna* may remain unabsorbed in the body and act as incompatible substance or binding material by playing significant role in the stimulation of immune system. Gold is already proved for its immunomodulatory effects because of its anti-bacterial action against different organisms but when it is mixed with *Madhu* and *Ghrita*, it enhances its action to stimulate body immune system.<sup>[28]</sup>

**2. Action of *Madhu*-** *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 newborn, the child gradually develop resistance for allergens and it remains unaffected by allergic disorders.<sup>[29]</sup>

**3. Action of *Ghrita*-** *Ghrita* 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 newborn until lactation starts properly.<sup>[30]</sup>

### Some Clinical and Experimental Evidences

Various clinical and experimental studies document the immune enhancing effect of the *Lehana* drugs especially *Swarna Bhasma*. Immune Response- Study documents that both specific and nonspecific immune responses were modified in a positive manner in *Swarna Bhasma* treated mice. *Swarna Bhasma* showed a stimulatory effect on peritoneal macrophages, which may be helpful to fight against infections. It was estimated that macrophages achieved stimulation possibly due to presentation of the metal to cells in fine emulsified form. The increase in the serum IgG level in the Gold compound group shows the immunological response of the rats against the antigenic material. One more study showed that gold nanorods (GNRs) inhibit Respiratory syncytial virus (RSV) in HEP-2 cells and BALB/c mice by 82% and 56%, respectively. The RSV inhibition correlated with marked upregulated antiviral genes due to GNR mediated TLR, NOD- like receptor and RIG-I- like receptor signaling pathways. Transmission electron microscopy of lungs showed GNRs in the endocytotic vesicles and histological analyses indicated infiltration by neutrophils, eosinophils and monocytes correlating with clearance of RSV. Further, production of cytokines and chemokines in the lungs indicate recruitment of immune cells to counter RSV replication.<sup>[31]</sup>

Some research works have been carried out on *Swarna Prashana*.

1. Significant increase in the phagocytic activity in albino rats was found in Dr. Ajay Chavan's study.<sup>[32]</sup>
2. Dr. Jyothy KB- reported that *Swarna Prashana* impact on cell mediated immunity against triple antigens, potential therapeutic effects in anti-amnesic activity and immunostimulant activity in Pharmacological study.<sup>[33]</sup> Anthropometrical measurements were found highly significant and raised IgG levels in clinical study.<sup>[33]</sup>

3. Study of Dr. Vinarma Sharma- titled showed that Toxicity Study of *Suvarna Bindu Prashana* in Albino Rats, Result: No signs of toxicity in albino rats.<sup>[34]</sup>
4. Research work of Dr. Anupriya- showed that *Swarna Prashana* is safe, non toxic, have immunomodulatory effect on prolonged regular use.<sup>[35]</sup>
5. Dr. Sheetal S.- reported that significant results were observed in reducing the bouts of cough (49%), duration of cough (40%), sleep disturbance (69.22%), Quality of sputum (43%), dyspnea (65%).<sup>[36]</sup>
6. Research work of Dr. Amruta Gaikwad- showed that *Swarna Prashana* acts as equivalent immune-modulators as evidenced by triggering the response of immunological system by a rise in the total proteins and serum IgG levels.<sup>[37]</sup>
7. Dr. Aniketh- concluded that Significant improvement in immunity and intelligence of the children.<sup>[38]</sup>

## DISCUSSION

*Lehana* are believed to be the first immunization given immediately after birth even before umbilical cord was cut and the baby was breast-fed by the mother. *Swarna Bhasma* (nano particles) was rubbed with honey and Ghee and given to the baby to lick. This has been regarded to as to increase immunity (against bacterial as well as viral infections), boost Intelligence, digestive fire & physical strength in the children Kasyapa, Sushruta and Vagbhatta describe a special formulation by the name of *Lehana* for this purpose which enhances immunity and thus minimizes infection episodes, from the childhood period. While describing the benefits of *Swarna Lehana*, Kashyap opines that, by feeding the gold for one month, the child is not attacked by any disease. This classical description implicates that ingestion of *Swarna* modulates immune mechanism, so that morbidity is reduced. Also *Swarna Prashana* is cost effective putting low economic burden on the country.

**Mode of Action of *Swarna Prashana Yoga***- Ghee has *Medhya* (intellect promoting), *Oja-Teja-Bala-Ayushya Vriddhikar* (provides vitality, lustre, strength and longevity), *Vrishya* (aphrodisiac), *Rakshoghna* (Immunostimulant activity). Further, Ghee acts as natural source of the fat soluble vitamins (Vit. A, D, K), traces of Fe, P, Cu,  $\beta$  carotene. *Madhu* (Honey) contains antigenic material– Pollens. *Vacha* (*Acorus calamus*) is *Medhya* (intellect promoting) and possesses Neuroprotective properties. *Swarna Bhasma* is *Vrushya* (aphrodisiac), *Ayushaya* (provides longevity), *Balya* (provides strength and immunity),

*Bruhana* (anabolic), *Ojo-Vardhana* (increases vitality), *Sarvavishapaham* (antitoxin), *Garaharam* (antitoxin).

All these drugs are mixed together to produce an emulsified mixture like small fat globulins-chylomicrons which helps in absorption through the oral mucosa. Small quantities fatty acids are absorbed directly into the portal blood rather than being converted into triglycerides and absorbed by lymphatic and intestinal epithelial cells allows direct diffusion into the capillary blood of the intestinal villa. Antigens in the honey are taken up by dendrites cells which interact with T lymphocyte striggering the Immunological response and body produces antibodies against antigen. Safety and efficacy study of *Swarna Prashana* showed its safe, non toxic effect. Animal studies on *Swarna Bhasma* revealed its immunostimulant effect and established it as a preventive and curative therapy. Research on immunomodulatory action concluded that it has immunomodulatory effect on prolonged regular use.

## CONCLUSION

Pharmacological and clinical trials on *Lehana* (*Swarna Prashana*) proved that it helps to build immunity and cognition in children. Many research works have proved on its efficacy, toxicity profile, immunomodulatory action and as growth and developmental enhancer in children. Toxicological studies reveal that classical preparations are safe for long time use. Modern researches on gold and gold compounds also support the *Swarna Prashana* concept of Ayurveda. *Lehana* can be use as an immunobooster for all children as prophylactic as it acts at the level of immunity. So there is need of today to revise the current immunization schedule with *Lehana* in child.

## REFERENCES

1. Jyothy KB, Srihari Sheshagiri, Kalpana S Patel, Rajagopala S. A Critical Appraisal on Swarnaprashana in Children. *Ayu.*, 2014 Oct-Dec; 35(4): 361-365.
2. Pravin Masram, Suhas Chaudhary, Patel KS, Kori VK, Rajagopala S. A brief review on Ayurvedic Concept of Immunity and Immunization. *Ayurpharm Int J Ayur Alli Sci.* 2014; 3(8): 230-240.
3. Kumar Devendra, Ojha Nisha Kumari, Importance of Ayurvedic Immunization in Present Scenario: Evidences. *International Journal of Medical Research and Pharmaceutical Sciences*, 2017 May; 4(5): 48-52.
4. Karam Singh, Bhavna Verma. The Concept of Vyadhikshamatva (Immunity) in Ayurveda. *Ayurpharm Int J Ayur Alli Sci.*, 2012; 1(5): 99-108.

5. Debnath P K. Molecules of Metals And Minerals In Ayurveda; The Interior Science For Health And Diseases. In; Papers on The Ayurvedic Studies, Edition. Brahmananda Gupta, Kolkata, The Asiatic Society, 2006; 124-140.
6. Mitra A, Chhakraborty S, Auddy B, Tripathit, Sen S, Saha Av, Et Al. Evaluation of Chemical Constituents and Free Radical Scavenging Activity of Swarnabhasma (Gold Ash); An Ayurvedic Drug. J Ethnopharmacol, 2002; 80: 147-53. [http://dx.doi.org/10.1016/S0378-0741\(02\)00089-9](http://dx.doi.org/10.1016/S0378-0741(02)00089-9).
7. Fang J, Nakamura H, Maeda H. The EP Are Effect: Unique Features Of Tumor Blood Vessels For Drug Delivery, Factors Involve And Limitations At Augmentation Of Effect. Adv Drug Delivery Rev 2011; 63: 1236-51, <http://dx.doi.org/10.1016/j.addr.2010.4.009> pmid: 20441782.
8. Wagnerv, Dullaart A, Bock AK, Zweck A. The Emerging Nanomedicine Landscap. Nat. Biotechnology, 2006; 24: 1211-70. <http://dx.doi.org/10.1038/nbt1006-1211>: 17033654.
9. Pandit Hemraj Sharma, Satyapala Bhisagacharya, Kashyap Samhita, SutraSthana, Lehadhayya, Chaukhambha Sanskrit Sansthana, Varanasi, 2010; 5-7.
10. Pandit Hemraj Sharma, Satyapala Bhisagacharya, Kashyap Samhita, SutraSthana, Lehadhayya, Chaukhambha Sanskrit Sansthana, Varanasi, 2010; 5-7.
11. Brahmanand Tripathi. Astanga Hridayam (Nirmala Hindi Commentary): Chaukhamba Sanskrit Pratishtan, New Delhi, 2013; 885.
12. Kaviraj Ambikadutta Shastri. Susruta Samhita (Ayurveda Tattva Sandipika Hindi commentary), Part-I, Chaukhambha Sanskrit Sansthan Varanasi, 2010; 113.
13. Prof. Siddhinandan Mishra, Bhaishajya Ratnavali (Siddhiprada Hindi Commentary), Chaukhamba Sanskrit Prakashan, Varanasi, 2013; 1088.
14. Shailaja U, Deepthi Viswaroopan, Arun Raj GR, Prasanna N Rao, Muralidhar P Pujar. Swarna Kalpa in pediatric practice. RGUHS Journal of AYUSH Sciences, 2017 Jan; 4(1): 7-11.
15. Karri Sravani, Hatware Ketan, Sharma Sanjay. A Review on Traditional Ayurvedic Preparations Containing Gold. International Journal of Pharmacognosy and Phytochemical Research, 2017; 9(6): 801-807.
16. Sarkar PK, Das S, Prajapati P K. Ancient Concept of Metal Pharmacology Based on Ayurvedic Literature. Ancient Sci Life, 2010; 29: 1-6.
17. Yadav KD, Chaudhary AK. Percentage of Swarna Bhasma in Medicaments of Ayurveda to Treat Disorders of Different Origin. Int J Green Pharm, 2015; 9: 90-4.

18. Kannan Sagar, Shailaja U, Arun Raj GR, Kavya Mohan, Ganga Narendran. Effect of Swarnamritaprashana on Growth and Development in Indian Toddlers. *Int. J. Res. Ayurveda Pharm*, 2018; 9(1): 30-35.
19. Gulati K, Ray A, Debnath PK and Bhattacharya SK: Immunomodulatory Indian Medicinal Plants. *Journal of Natural Remedies*, 2002; 2(2): 121-131.
20. Masihi KN: "Fighting Infection Using Immunomodulatory Agents." *Expert Opin Biol Ther*, 2001 Jul; 1(4): 641-53.
21. Rajagopala S, Ashok BK and Ravishankar B: Immunomodulatory Activity of Vachadhatryadi Avaleha in Albino rats. *Ayu.*, 2011 Apr-Jun; 32(2): 275–278.
22. Agnivesha, Charaka Samhita, Sutra Sthana, 28/6, Edited by Bhmrhanand Tripathi, Chaukhambha Sanskrit Sansthana, Varanasi, Reprint, 2005; 546.
23. Tripathi JS, Singh RH: The Concept and Practice of Immunomodulation in Ayurveda and the Role of Rasayanas as Immunomodulators. *Ancient Science of Life*, 1999 Jul-Aug-Sep-Oct; 19(1,2): 59-63.
24. Rathia Satyawati, Kori V. K., Swarna Prashana– A Immuno-Booster in Ayurveda. *Int J Ayu Pharm Chem*, 2015; 4(2): 305-315.
25. Patwardhan B, Warude D, Pushpangadan P and Bhatt N: Ayurveda and traditional Chinese medicine: A comparative overview. *Evid Based Complement Alternat Med.*, 2005; 2: 465–73.
26. Singh RH, Udupa KN. Bhattacharyaa SK and Muruganandam AV: Clinical and Experimental Studies on Rasayana Drugs and Rasayana Therapy. Adaptogenic Activity of *Withania Somnifera* - An Experimental Study Using a Rat Model of Chronic Stress. *Pharmacol Biochem Behav*, 2003; 75: 547–55.
27. <http://www.ayurchikikitsak.com> >swarana/suvarna prashana-ayurchikitsak.
28. <http://infoayushdarpan.blogspot.in/2011/05/swarnabindu-prashana.html>.
29. Dr.Brahm Dutt Sharma, A Review Article On Swarna Prashana Samskara W.S.R. Immunization. <http://www.ijaar.in> IJAAR, II.
30. Ruchi Gupta, Ritika Khajuria, A Review Article on Swarna Measure. *International Ayurvedic Medical Journal*, 2019 May; 7(5): 816-819.
31. Kumar Devendra, Ojha Nisha Kumari, Importance of Ayurvedic Immunization in Present Scenario: Evidences. *International Journal of Medical Research and Pharmaceutical Sciences*, 2017 May; 4(5): 48-52.
32. Dr. Ajay Chavan (2012): "Immunomodulatory effect of Swarna bindu Prashana in Albino Rats", KLE University, Belgam.

33. Dr. Jyothy KB (2013): “A Randomized Controlled Clinical Trial on Swarna Prashana in Infants W.S.R. to Its Immunomodulatory Activity”, I.P.G.T. & R.A. Jamnagar.
34. Dr. Vinarma Sharma (2012): “Toxicity Study of Suvarna Bindu Prashana in Albino Rats” KLE University, Belgam.
35. Dr. Anupriya (2013): “Safety and Efficacy Study of Swarna Prashana Drops Prepared From Swarna Bhasma and Swarna Lavana” I.P.G.T. & R.A. Jamnagar.
36. Dr. Sheetal S. (2009): “Effect of Swarnmruta Prashana on Recurrent Attacks of Kasa” S.D.M. College of Ayurveda Hassan.
37. Dr. Amruta Gaikwad (2011): “A Comparative Pharmaco-Clinical Study of the Effect of Madhu-Ghrita and Swarna-Vacha-Madhu-Ghrita on Neonates”, I.P.G.T. & R.A.Jamnagar.
38. Dr. Aniketh (2012): “To Clinically Evaluate the Effect of Swarna Bindu Prashana on Immunity and Intelligence of Children”, KLE University, Belgam.