



Conceptual Study Of *Suvarna Bhasma*- A review

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ABSTRACT:

Suvarna i. e. gold metal is divine metal and *Suvarna bhasma* is used in ayurvedic medicine since Vedic era. This study tries to review all facts available to elucidate research, safety, and possible therapeutics with *Suvarna bhasma*. It is well described to use *Suvarna* in childhood age. We found that absorption is very well dependent upon the particle size and adjuvants used.

KEYWORDS: *ayurveda, suvarna, swarna, bhasma, kaumarbhritya, gold ash, au.*

INTRODUCTION:

Suvarna/swarna is the term used to describe gold metal in *Sanskrit, hindi* and other regional languages. The therapeutic value of *Suvarna* (gold) metal was known to ancient *acharyas*. It is widely described in *upnishwada, purana* and *smrities*¹.

Among *brihatrayies charakacharya* has mentioned its pronounced effect as *vishahara* drug. He stated that the person who has received gold in any form would not be affected by bad effects of *visha*

(poison). The *vishaghna* action of *Suvarna* is just similar to that of lotus and water relation (cha.chi.23/239)².

DG Richards et al said Paracelsus, in the 16th century, recommended preparations of gold in his therapy for epilepsy (*temkin*, 1971). By the beginning of 17th century, alchemists were clearly able to produce the soluble salt gold *trichloride* (*higby*, 1982). By the mid-17th century, gold was in use as a *nervine*³.

TYPES- There are main 5 types of *Suvarna* as mentioned by *vagbhatacharya* in *rasaratna samuchchaya* (RRS) viz. 1) *prakruta* 2) *sahaja* 3) *agni sambhava* 4) *khanija* 5) *rasaviddha* (ie prepared from *parada* with multiple chemical reactions). Out of these, initial 3 types are collectively called as *alaukik* or *shodash varna Suvarna* and *khanija* is called as *chaturdasha varna Suvarna*. *Vedhita Suvarna* is auspicious, *rasayana* and with distinctive quality⁴.

QUALITY GOLD-

Among these types, we should choose *Suvarna* with good quality mentioned as –

Color should be changed to red on heating, look bright on cutting and a bright red colour line should be drawn on *kasauti* (a gold testing stone). It should be heavy in nature. It should be smooth (*snigdha*), *mrudu* (*malleable*) and clean. It should be devoid of any flakes (*patrarahit*). It should have yellowish lusture⁵.

SHODHANA-

There is difference of opinion about *shodhana* of *Suvarna* whether *shodhana* should be done or not to be done. It is clearly stated in RRS that if someone ingested *Suvarna* in impure form or without *marana* procedures, it may evoke adverse effects such as development of clusters of diseases, and it may destroy health, power (defence mechanism), *virya*. So *Suvarna* dhatu should be purified and processed adequately before therapeutic use⁶.

The *shodhana* (purification) of *Suvarna* is usually done with sequentially *nirvapan* (7 times each) in oil, buttermilk, cow urine, kanji (a unique *ayurvedic* fermentative preparation) and *kulattha* decoction. The *marana* is done with 1) lemon juice + *rasa sindur* 2) *parade bhasma* + *hingula* 3) *rasa sindur* + lemon juice 4) *s. parada* + lemon juice+ *s. hingula* + *s. sulphur* + *s. manashila* + *s. navasadar*. 5) *s. parada* + lemon juice+ *s. manashila*+ *rasa sindur*+ *Suvarnamakshik bhasma* + milk of *arka* (*Calotropis gigantea* plant). 6) *s.parada* + lemon juice + *s. sulphur* 7) *s. malla* (arsenic) + *kanchnar* juice (*Bauhinia variegata*)+ basil juice⁷. Among these different procedures, any single formulation can be adopted as per feasibility or experience.

Jie liu et al stated that *Bhasmas* used in other traditional medicines, minerals are subjected to “alchemy” procedures to alter their original forms suitable for medication, which are distinct from other environmental metal contaminants⁸.

Ashwini et al concludes that *Ayurvedic bhasma* prepared by different brands differ in quality, as there is variation in elemental concentration⁹.

In a study, *Snehasis* et al said this study concludes that the physicochemical structures as well as biological responses of these 5 preparations were not similar, and hence efficacy and safety of these SB preparations from different manufacturers may vary¹⁰.

QUANTITY TO ADMINISTER-

Dose of *Suvarna bhasma* to be used for medication

1) according to *rasa tarangini* is 1/8-1/4 *ratti* or

2) according to RRS is max up to 2 *gunja*¹¹.

ABSORPTION AND DISTRIBUTION-

Guy et al said Gold levels were measured in serum and whole blood in one male subject after ingestion of 30 mg colloidal gold (*Aurasol*®) in a liquid suspension. Peak serum gold level was achieved in 5 minutes *postingestion* and became undetectable at 30 minutes. On the other hand, whole blood levels peaked at 30 minutes and became undetectable by eight hours post-ingestion¹².

Gold *nanoparticles* typically less than 58 nm in size was reaching various organs through blood. Since gold in the *Swarna bhasma* is approximately 28–35 nm in size, it 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 action¹³.

Daniel et al concluded that The localization of *IAuPs* (incinerated Au particles) in the nucleus occurs during cell division¹⁴.

Kapil et al concluded that the mean size of the gold crystallites was less than 10 microns, and the morphology was globular and irregular. *Suvarna Bhasma* contains gold as its single and major element, with EDAX and FT-IR spectra showing that it is more than 98% pure gold¹⁵.

Sanjay et al *Swarna Bhasma* (incinerated gold) contains gold (Au) as a major element. Its particle size ranges in between 1-10 μm and contains 52.33% elemental gold¹⁶.

Kapil et al said The mean size of the gold crystallites was less than 10 microns, and the morphology was globular and irregular. The *Bhasma* particles, which included a few nano-sized particles, were observed to form agglomerates, which was caused by the calcination processes. EDAX, AAS, XRD, FT-IR and elemental assay findings confirmed that *Suvarna bhasma* contained gold as its single and major element, being more than 98% pure gold¹⁷.

Parimalam et al said For now, it is difficult to accept the idea that particles incinerated several times at high temperatures would be *nano*-sized. More studies on the sub-cellular behaviors of metal ash particles are required to precisely elucidate their impact at different levels¹⁸.

IMPORTANCE OF ANUPANA (ADJUVANTS)-

Suvarna bhasma should be taken with *anupana* of *trikatu* or ghee¹⁹.

Suvarna bhasma if taken with *anupana* of different medicines results into specific actions as 1) with fish bile, it will result in decrease in burning sensation 2) aphrodisiac with *bhringraj* 3) increases *bala* with cow milk 4) vision will improve with *punarnava* 5) acts as *rasayana* with ghee 6) increases intellect with *vacha* 7) increases tone of body with *kumkuma* 8) heals *rajayakshma* and poisoning with milk (possibly goat) 9) useful in *unmada* and *tridosha nashaka* with *shunthi*, *launga* and *marich*²⁰.

Trupti et al in human experiment concluded that Gold was absorbed in maximum amount from sublingual administration of 30 mg *Swarnabhasma*; and 30 mg dose mixed with black pepper powder and ghee showed quickest absorbance²¹.

Brown et al said Colloidal metallic gold (average particle size 27 nm) is a far more potent and effective anti-arthritis agent in rats than the sodium *aurothiomalate* (I) used to treat rheumatoid arthritis. *Swarna bhasma*, as used in *Ayurvedic* medicine, comprises gold-containing particles that are globular and have an average size of 56-57 nm²².

APATHYA- *Apathya* during *Suvarna bhasma* medication is *bilva* fruit²³.

GUNA KARMA- *Suvarna bhasma* appears to be *snigdha* with *madhur vipaka*. It exerts cognitive actions and leads to increase in IQ. It also diminishes untoward effects of *visha*. It is nutritious, aphrodisiac, enhances *jatharagni* (appetite) and *tridosha nashaka*. It is useful in multiple diseases including *yakshma* and *unmada*²⁴.

Significant reversal of the enzymatic alterations in both focal and global models suggest marked protective action of *Kushta Tila Kalan* and *Swarna Bhasma* against *ischaemic* insults. Earlier studies sponsored by ICMR embodied *immunomodulatory* effects of *Swarna Bhasma* and *Unani Kushta Tila Kalan* with *Auranofin*. These formulations also shows analgesic, *anticataleptic*, *antianxiety*, antidepressant, glycogen sparing, *adaptogenic*, and *immunostimulant* actions in contrast to immunosuppressant actions of *Auranofin*. Thus traditional gold preparations are very interesting agents with great therapeutic potential which needs to be explored by further investigations²⁵.

Dongre et al said that *Bhasma* preparation contains significant number of trace elements in bio accessible form. It could be a good option for deficiency disorders of trace elements²⁶.

Kapil deo et al said Formulations containing <10% SB as ingredient was used for treatment of diseases of gastrointestinal tracts and *Yakshma* and 11-20% for *vatavyadhi* and *prameha*. But formulations having <10% as well as 11-20% of SB was used in treatment of *jwara*. It is also concluded that percentages of SB play major role in treatment of disease depending upon *etiopathology* of disease, pharmacological properties and *biodistribution* of SB²⁷.

ANTICANCER UTILITY-

Plasmon *photothermal* laser therapy of cancer using GNP was first described in 2003 and recently moved into the stage of clinical approval²⁸.

Das et al said *Swarna Bhasma* can be a potential drug for anticancer therapy. The response was best in rectal cancer group 70% (7/10) was statistically significant. No significant side effect was noted during the course of treatment that led to discontinuation²⁹.

SAFETY-

Pal et al explains as Assessment of liver function test (enzymes) and histological investigation show no toxic effect of chronic administration of *Swarna Bhasma*. The particle size of the raw material was between 6 and 8 μ while that for the *Bhasma* particles was 1- and- 2 μ ³⁰.

Paul et al signifies as The *Swarna bhasma* preparations did not induce any blood cell aggregation or any protein adsorption. Activation potential of these preparations towards complement system or platelets was negligible. These particles were also non-cytotoxic³¹.

PEDIATRIC SAFETY-

Vikas et al concluded that *swarna bhasma* is not harmful to children and also reduces frequency of illness and useful in growth and development³².

Shingadiya et al said that *Ayurvedic herbo-metallic* preparations are found quite safe to the use in pediatric disorders with proper dose and adjuvant³³.

Soni et al said *swarna bhasma* acts via the modulation of *humoral* immunity it involves interaction of b-cell with the antigen, and their subsequent proliferation and differentiation into antibody-secreting plasma cells³⁴.

Soni et al said Corona proved that nature can be brutal and highly lethal. Now the time has come to recall our ancient

culture and rituals and also the use of our traditional medicine to bring changes³⁵.

IMAGING STUDIES-

Dykman et al said that It is now widely accepted that GNP conjugates are excellent labels for solving the problems of bioimaging³⁶.

Yi cheun et al concludes that *AuNPs* have multiple attributes. The wide range of surface functionality and bioconjugates coupled with the outstanding physical properties of *AuNPs* make these systems valuable for imaging applications. *AuNPs* are incredibly versatile materials for next-generation biomedical applications³⁷.

Prajapati et al said However caution should be taken while preparing these preparations and calculating the dose and duration during clinical practice³⁸.

Singh neetu et al said a critical analysis of all available facts suggest that *swarna bhasma* may *caliberated* on parameters of contemporary science all across the globe in service of humanity³⁹.

CONCLUSION-

Suvarna bhasma (incinerated gold) is very well known to society. It is precisely used in management of diseases in all specialties of *ayurveda*. *Shodhana* and *marana* is very essential and procedure used to prepare *bhasma* may have impact on particle size. Some studies show safety on its use as medicine.

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