ISSN 2456-3110
Vol 9 · Issue 9
September 2024

JAiMS
INTERNATIONAL

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences

Maharshi Charaka
Ayurveda

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
REVIEW ARTICLE September 2024

Critical review on *Naga Bhasma*

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ABSTRACT

Rasa Shastra in *Ayurveda* focuses on metals and minerals categorized as *Rasa, Maharasa, Uprasa, Dhatu, Ratna, Visha,* etc., and is valued for its potent therapeutic effects compared to herbal drugs. *Naga*, a type of *Putiloha* in *Dhatu Varga*, is utilized for medicinal purposes to treat various ailments like Diabetes, Obesity, Joint issues, eye and skin conditions, and Anemia. The process of drug preparation explained in *Rasa Shastra* involves *Samskara*, which alters the characteristics of the drugs. The purification process, known as *Shodhana,* must be done on all medications before they are used in any mixture or undergo further processes like *Jarana* and *Marana*. In the field of *Rasa Shastra, Jarana* can be seen in various forms such as *Parada Samskara, Gandhaka/Bali Jarana,* and *Putilohas Jarana*. This article examines *Jarana* of the *Putiloha*. The preparation of *Bhasma* is a multistep and intricate process. The steps vary significantly depending on the type of herbal, metallic, or mineral media used in the *Marana* process. *Naga* (Lead) was grouped with heavy metals such as mercury, arsenic, and cadmium. It's exposure can result in neurological disorders and issues with other body systems. *Naga Bhasma* is a preparation that includes Lead as its main ingredient. Lead and its compounds are harmful to human health. The presence of unique healing qualities in *Naga Bhasma* suggests that the *Ayurvedic* procedures used in its creation result in significant transformations in *Naga*. These processes eliminate its toxicity and add exceptional medicinal properties to *Naga Bhasma*.

Key words: *Naga, Shodhana, Marana, Naga Bhasma.*

INTRODUCTION

The use of metals and minerals for medicinal purposes were common even during prehistoric times, though it was not widely practiced. The literature also indicates that in the past, these metals were commonly used in the *Lohavad* (converting lower metals to higher metals). The more appropriate medicinal forms emerged following the advancement of *Rasashastra. Dhatu Varga* is categorized into three main divisions which are *Shuddha Loha, Puti Loha*, and *Mishra Loha.*[1] *Naga* is one of the metal in *Putiloha* has a lower melting point compared to other metals and emits a bad smell when melted. *Naga Bhasma*, derived from Lead metal, is a remarkable *Ayurvedic* remedy used for ailments like Diarrhoea, enlarged spleen, and Diabetes.[2] The therapeutic effectiveness of *Naga Bhasma* varies depending on how it is prepared. For example, *Naga Bhasma* prepared by *Bhavana* with *Ahiphena* (*Papaver somniferum*) juice has more aphrodisiac properties,[3] while the one made from *Manashila, Gandhaka*, and *Vasa* is better for skin issues.[4] This paper aims to explore the various preparation methods of *Naga Bhasma*, including its synonyms, historical background, therapeutic qualities, different *Shodhana* and *Marana* methods according to different texts, and examination of safety and toxicity aspects.

Origin of *Naga*

According to mythological beliefs, after seeing the beautiful daughter of the snake king "*Bhogi*", the semen of the *Vasuki* snake was ejaculated which came to be known as *Naga*.[5]

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Submission Date: 09/08/2024 Accepted Date: 22/09/2024

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.9.9.14

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Synonyms

SN	Synonyms	References
1.	*Sisa*	Ch. Chi. 7/85
2.	*Kutila, Phana*	*Ra.M. 1/64,8/8*
3.	*Ahi, Phani*	*R.H.T.5/50, 16/27*
4.	*Naga, Sisaka, Sisa, Yogeshta, Jada, Radanga, Uranaga, Tiraka, Paripishtaka*	*Vasvarajiyama*
5.	*Bhujanga*	*Rasarnava* 7/96, Ra.S.S.1/291
6.	*Sisaka, Jada, Sheet, Yavaneshta, Bhujanga, Bhogishta, Naga, Uranga, Kuvanga, Paripishtaka, Krishnayasa, Pakshamatara*	A.K.V. 6/17-18
7.	*Sisaka*	R. Ch. P-105
8.	*Naga, Sisa, Vabhra, Yogeshtha, Naganamkam*	A.P. 3/185
9.	*Sisaka, Shishaka, Sisa, Nagaka, Naganamkam, Kuvangaka, Kuranga, Sindoorkarana*	R.T. 19/1
10.	*Naga, Sisaka, Yogeshata, Vapra, Naganamkam*	*Rasamrita* 3/101
11.	*Naga, Sisaka, Sisa, Vradhra, Yogeshata, Vapra, Kuvanga, Kuranga, Dwirada, Sarpanamkam*	R.J.N.(P-120)

Vernacular names

Sanskrit name - *Naga*

Hindi name - *Sisa*

English name - Lead

Latin name - Plumbum

Physical properties of Lead metal

Symbol - Pb

Atomic No. - 82

Atomic weight - 207.22

Hardness - 1.5

Specific gravity - 11.3

Melting point - 326°C

Boiling point - 1524°C

Types of *Naga*

SN	Types	Reference
1.	One type	*Rasarnava*[6]
2.	Six types	*Arkaprakash*
3.	Two types a) *Kumara*- used for therapeutic purpose *b) Samala*	*Rasachandanshu,*[7] *Brihada Rasarajasundara*[8]

Grahya Lakshana of *Naga* according to different *Rasagrantha*

SN	*Grahya Lakshana*	References
1.	*Guru, Drutadravama, Mridu, Mahabharam*	*Rasarnava* 7/11
2.	*Chedekrishnam, Drutadravama, Putigandham, Krishnavarna Bahiha, Mahabharam*	A.K.V. 6/20
3.	*Guru, Chedekrishnam, Drutadravama, Putigandham, Krishnavarna Bahiha, Chedekrishnam, Drutadravama, Krishnavarna Bahiha*	R.P.S.4/96
4.	*Guru, Chedekrishnam, Putigandham, Krishnavarna Bahiha*	Ra.S. (P-83)
5.	*Galitama Gahanopamama*	Ar. P. 10/27
6.	*Guru, Chedekrishnam, Drutadravama, Putigandham, Krishnavarna Bahiha, Mahabharam*	R.R.S.5/170
7.	*Guru, Chedekrishnam, Drutadravama, Putigandham, Krishnavarna Bahiha,*	Rasamrita 5/102

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8.	*Guru, Snigdha, Mridu, Drutadravama*	R.T. 19/2

Agrahya Lakshan of *Naga*

The *Naga* which exhibits a whitish external surface, which is light in weight, when cut has no shiny inner part, which is dirty and melts with difficulty; such *Naga* should not be selected for pharmaceutical or therapeutic use.[9]

Necessity of *Naga Shodhana*

Internal administration of impure or improperly purified *Naga* in any form causes *Prameha Roga, Kshaya Roga* and *Kamla Roga,*[10] ruining beauty of the body, swelling, skin diseases, joint pain, paralysis, *Anaha*, Gout, Inactivity in the arms[11] etc. Therefore, the *Naga* has to be properly purified before taking it for incineration and eventually internal administration.

Naga as heavy metal[12]

Heavy metals are essentially chemical elements with a specific gravity of five times of water. Heavy metals, which are commonly responsible for harm, are often found in concentrations. Mercury, Arsenic, Lead, Cadmium, and Thallium can cause harm to people when environmental pollution occurs from different sources. Heavy metal toxicity occurs when there is an overabundance of those metals in the body. These metals cannot be metabolized in the body, as a result they tend to accumulate in tissues and disrupt the normal functions.

Shodhana of *Naga*

Shodhana (purification) is necessary for every drug before taking it for adding in any compound or before subjecting it for further procedure.

Two types of *Naga Shodhana* are described

1. *Samanya Shodhana* of *Naga*

Melting the *Putiloha* like *Naga, Vanga* then quenching it 3 or 7 times in *Taila* (oil), *Takra* (buttermilk), *Kanji*, *Go-mutra* (Cow urine) and *Kulattha Kwatha* respectively is called *Samnaya Shodhana* of *Naga*. The order of the *Shodhana media* may vary depending on the various *Rasagrantha*.

Naga Samanya Shodhana according to different *Rasagrantha*

SN	Type of procedure	*Shodhana* Media	No. of procedures	Reference
1.	*Bhavana*	*Snuhi Kshira, Arka Kshira, Surana Kanda, Chitraka, Gunja, Karanja, Dhatura, Ashwagandha Mula, Mahisha Takra*	--	*Rasarnava* 7/116-117
2.	*Dhalana / Nirvapa*	*Taila, Takra, Kanji, Go-Mutra, Kulattha Kwatha*	3	Sha.M. 11/2-3
3.	*Dhalana / Nirvapa*	*Taila, Takra, Go-mutra, Kulattha Kwatha, Kanji*	7	R.Chan.P. 2/437-439, R.M.5/2-3
4.	*Dhalana / Nirvapa*	*Taila, Takra, Go-mutra, Kanji, Kulattha Kwatha*	7	S.Y.S.(P-156), R.S.3/185, R.R.S. 5/12-13, Ra.Chi. 6/3-4, R.S.S 1/254-255, *Rasamrita* 3/4-6, R.P (P-76)
5.	*Dhalana/Nirvapa*	*Taila varga, Takra Varga, Dhanya Kwatha, Mutra Varga, Madya Varga, Katuka Rasa, Amla Varga, Pushpa Varga, Rakta Varga, Phala Varga, Kshira Varga, Arka Varga*	10	*Arkaprakash*10/2-4
6.	*Dhalana/Nirvapa*	*Triphala Kwatha,*	7	B.R.R.S (P-80)

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		Kumari Swarasa, Hasti Mutra		
7.	*Dhalana/Nirvapa*	*Kanji,Takra, Kulattha Kwatha, Go-mutra, Taila*	3	R.T.15/4-6

2. *Vishesha Shodhana* of *Naga*

By melting the *Putiloha* like *Naga*, *Vanga* then quenching it 3 or 7 times in their specific *Shodhana* liquid media is called *Vishesha Shodhana* of Naga. The *Shodhana media* may vary depending on the various *Rasagrantha*.

Naga Vishesha Shodhana according to different *Rasagrantha*

SN	Type of procedure	*Shodhana* Media	No. of procedures	Reference
1.	*Bhavana*	*Gauri Phala, Kshurak, Haridra, Tumbaru, Mallika Kshara, Palash Kshara, Apamarga Kshara, Kulishdruma Kshara*	7	Ra. M.1/164-165, *Rasarnava* 7/113-115, A.K.V. 6/21
2	*Dhalana / Nirvapa*	*Arka Kshira*	7	S.Y.S. (P-55)
3.	*Dhalana / Nirvapa*	*Nirgundi Mula Churna, Arka Kshira, Nirgundi Swarasa/Kwatha*	7	*Vasavarajiyam* (P-806)
4.	*Dhalana / Nirvapa*	*Nirgundi Mula Churna, Nirgundi Swarasa*	-	A.K.V. 6/22-23
5.	*Dhalana / Nirvapa*	*Mahisha Asthi Churna, Mahisha Mutra*	-	A.K.V. 6/24
6.	*Dhalana / Nirvapa*	*Nirgundi Swarasa, Haridra Churna, Nirgundi Mula Churna, Renuka*	3	Ra.Chu. 14/140, *Rasamrita* 5/103
7.	*Dhalana / Nirvapa*	*Hasti Mutra, Hasti Asthi Churna*	-	*Rasarnava* 7/112
8.	*Dhalana / Nirvapa*	*Tailadi, Arka Kshira*	7	Ra. Chi. 6/6
9.	*Dhalana / Nirvapa*	*Nirgundi Swarasa, Haridra Churna*	7	R.P.S. 4/97
10.	*Dhalana / Nirvapa*	*Nirgundi Mula Twaka Churna, Renuka Bija Churna, Haridra Churna, Nirgundi Swarasa*	3	R.R.S.5/172-173
11.	*Dhalana / Nirvapa*	*Arka Kshira*	3	Ra.P. 16/6, Ra.S.S.1/283, Sha.M. 11/4, R.J.N. (P-105), B.R.R.S.(P-80), Ra.B. 4/133,
12.	*Dhalana / Nirvapa*	*Arka Kshira / Arka Patra Swarasa*	3	R.M.5/38
13.	*Dhalana / Nirvapa*	*Arka Kshira / Nirgundi Swarasa*	3	R.Chi.2/560-561

Marana of *Naga*

Marana of *Putiloha* is divided into two stages-

1) *Jarana* of *Naga*

Putiloha are metals that possess a low melting point and they include *Naga* (Lead), *Vanga* (Tin) and *Yashada* (Zinc). *Jarana* serves as the intermediary step in the *Putiloha Marana* as they have low melting point. In this process, *Shodhita Putiloha* is heated in an iron pan until it melts. Add one-quarter of of *Apamarga Churna* (in *Vanga Jarana*) or *Aswattha Twak Churna* (in *Naga Jarana*) is added in molten metal and vigorously rubbed with an iron ladle. After several hours of rubbing *Putiloha* begins to turn into powder. Once the *Putiloha* is completely powdered, it is enveloped under *Sharava* and subjected to high temperature.

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Jarana of *Naga* according to different *Rasagrantha*

SN	*Jarana Dravya*	References
1.	*Aswattha Twaka Churna, Chincha Churna*	A.K.V. 6/25-27, A.P.3/190-191, R.R.S. 3/174-179, Sha.M. 11/37-39, *Rasapradeep* (P-51), Ra.P. 16/12-15
2.	*Churnodaka*	A.K.V. 6/28-30
3.	*Bhunaga, Agastya Patra Swarasa, Vasa Kshara, Chincha Kshara*	A.K.V. 6/33-36
4.	*Manashila*	Ra.Chi. 6/48, R.M. 5/39, R.T.19/19-23
5.	*Hartala Churna*	Ra.Chi. 6/48
6.	*Vasa Churna, Apamarga Churna*	Ra.Chi. 6/52, R.T.19/24-28
7.	*Aswattha & Chincha Ash, Hartala*	R.J.N.3(P-110)
8.	*Aswattha Twaka Churna*	R.P.(P-56), R.T.19/11-18
9.	*Chincha Kshara*	*Rasa Pradipika* (P-90)
10.	*Aswattha Twaka Churna, Chincha Twaka Churna* or *Arkamula Churna*	S.Y.S.(P-155)
11.	*Manashila, Tambula Swarasa*	Ra.B. 4/134
12.	*Parada, Khakhasa*	*Rasamrita* 5/104-105

2) *Marana* of *Naga*

The process of subjecting metallic and mineral drugs to different pharmaceutical procedures using a wide range of herbal formulations and later subjecting them to intense heat to obtain them in the form of *Bhasma* is called *Marana*.

Marana of *Naga* according to different *Rasagrantha*

SN	*Marana Dravya*	*Bhavana Dravya*	*Puta*	No. of *Puta*	Colour of *Bhasma*	Ref.
1.	*Manashila*	*Vasa Patra Swarasa*	*Varah puta*	3	--	R.P.S. (P-84)
2.	*Manashila*	*Vasa Patra Swarasa*	*Kumbha puta*	3	--	R. Cha. 2/563. B.R.R.S.(P-80-81), R.P.(P-56), Ra.P. 16/7
3.	*Hingulottha Parada, Manashila*	*Nimbu Swarasa*	--	--	Brown	R.S. part 5 3/187-191
4.	*Manashila*	*Arka Kshira*	--	--	--	Rasarnava 7/149, R.R.S. 3/184
5.	*Mritagolaka. Hemgolaka*	*Bijaura Nimbu Swarasa*	--	--	*Shakragopa Nibhama*	R.N.12/92-93
6.	*Manashila*	*Jambiri Swarasa /Kanji*	*Kukuta puta*	60	--	A.K.V. 6/25-27, A.P. 3/190-191, R.R.S. 3/180-183, Sha. M. 11/37-39, Ra.P. 16/12-15
7.	*Aswattha Twaka & Chincha Twaka Churna*	*Chitraka Kwatha*	*Laghu Puta*	6	--	A.K.V. 6/28-30
8.	*Manashila, Swarna Makshik Bhasma*	*Vasa Patra Swarasa*	*Laghu Puta*	21	*Sindoor varna*	A.K.V. 6/35-36

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9.	*Bhunaga, Agastya, Vasa, Apamagrga*	*Vasa Swarasa*	*Agniputa*	7	*Sindoor varna*	R.Cha. 2/564-565, R.M. 5/39
10.	*Kankustha, Parada, Hingula, Abhraka Bhasma, Swarna Makshik, Swarna Vimala, Tamra Bhasma*	*Arka & Snuhi Kshira*	*Laghu Puta*	--	--	R.H.T. 5/19-20
11.	*Manashila*	*Nagavalli Patra Swarasa*	*Laghu Puta*	32	--	R. Cha. 2/567-568, R.Pra. (P-50), Sha. M.11/36
12.	*Manashila*	*Tambula Swarasa*	--	32	--	Ra.B. 4/134
13.	*Ahiphena*	--	--	--	*Sweta Varna*	R. Cha.2/568-569, B.R.R.S.(P-80-81), Ra.P. 16/8
14.	*Hartala*	*Palash Kwatha*	*Gajaputa*	20	--	R.J.N. Part-3(P-110)
15.	*Gandhaka*	*Nimbu Swarasa*	--	3	--	Ra. Chi.6/48, R.T. 19/19-23
16.	*Gandhaka, Bhunaga, Agastya*	*Nimbu Swarasa*	--	--	--	Ra. Chi. 6/49-51
17.	*Vasa & Apamarga Kshara*	*Vasa Swarasa*	--	7	*Sindoor Varna*	Ra.Chi .6/52-54
18.	*Palasha, Manashila*	*Amla Rasa*	*Gajaputa*	60	--	R.R.R.K.3/109-111
19.	*Manashila*	*Tanduliyaka & Vasa Swarasa*	--	7	--	Ra.P.16/9-11, B.R.R.S.(P-80-81)
20.	*Manashila*	*Kanji*	--	60	--	Ra.P. 16/12-15, R.Pra. (P-51)
21.	*Arka Mula*	--	--	--	*Harita Varna*	Ra.P.16/20
22.	*Manashila, Karpoora, Kumkuma*	*Jambiri Nimbu Swarasa*	--	--	*Vidyutabhashama*	Ra.P16/21-22
23.	*Kumari Mula*	*Kumari Swarasa*	--	100	*Sindoor Varna*	Ra.P.16/23
24.	*Agastya Patra Kalka, Vasa & Apamarga Kshara*	*Vasa Swarasa*	--	7	*Sindoor Varna*	Ra.S.S.1/291-293
25.	*Ajmoda*	*Vasa & Ajmoda Swarasa*	*Vasa Kastha Paka*	--	--	Vasvarajiyama (P-806)
26.	*Manashila*	*Vasa Swarasa*	*Kumbha Puta*	3	--	R.M. 5/39
27.	*Manashila*	*Vasa Swarasa*	--	40	*Rakta Varna*	S.Y.S.(P-155)

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28.	*Bhunaga*	--	--	--	*Atipitar akta Varna*	R.Chi. 5th Staba ka(P-153-155)
29.	*Manashila*	*Nimbu Swarasa*	*Laghu Puta*	60	--	Rasa Pradip ika (P-90)
30.	*Manashila*	*Vasa Sawaras a*	*Laghu Puta*	7	--	Rasa mrita 5/104 -105
31.	*Manashila*	*Kanji*	*Gajap uta*	3	--	R.P.(P -56), R.T 19/11 -18
32.	*Parada, Gandhaka*	*Kanji / Nimbu Swarasa*	*Laghu Puta*	--	*Krishna Varna*	R.P.(P -56)
33.	*Parada, Arjuna, Aaragawa dha, Dadima, Apamarga Kshara*	--	--	--	*Rakta / Kapota Varna*	R.R.S. 3/174 -179
34.	*Vasa Churna*	*Vasa Swarasa*	--	3	*Kajjala prabha ma*	R.T. 19/24 -28
35.	*Hartala*	--	--	2-3	--	R.T. 19/34 -36
36.	*Manashila*	*Arka Kshira*	--	3	--	R.T. 19/37 -40

Properties of *Naga Bhasma*[13]

Rasa - *Madhura, Tikta*

Guna - *Snigdha, Ushna, Guru, Sara*

Virya - *Ushna*

Karma - *Lekhana, Deepana, Rajataranjanakrita, Balya*[14,15]

Doshaghnata - *Vatakaphapaham, Sameerkaphapitta Vikaraghana*[16,17]

Dose - ¼ to 1 *Ratti* (30 to 125 mg)[18]

½ to 1 *Ratti* (63 to 125 mg)

Lead toxicity[19]

Lead is a toxic metal that causes irritation. Like many other metals, lead's soluble compounds are also highly toxic than Lead itself, unless it is in a volatile state. It may gain entry through inhalation, ingestion, or skin/mucous membrane absorption. Its impact is to induce contraction of the capillaries and arterioles. The harmful impact occurs due to the binding of Lead in specific body parts like the brain and peripheral nervous system. Acute Lead poisoning is rare and happens when someone ingests acid-soluble Lead compounds or breathes in it's vapours. Symptoms resemble those of arsenic or mercury poisoning, with the difference being that the stool is discolored and has a foul smell. The primary symptoms involve disruptions in the gastrointestinal tract and central nervous system. Astringency, thirst, and metallic taste can be experienced, along with nausea, stomach pain, and vomiting. Stools could turn black due to lead sulphide, and Diarrhea or constipation may occur. Shock, tingling sensations, pain, and muscle weakness are possible symptoms. This could be followed by a haemolytic crisis leading to severe anemia and Haemoglobinuria. Kidney damage may result in decreased urine output, and death could happen within 1 or 2 days. Lead poisoning is primarily chronic. Symptoms of chronic Lead poisoning can be categorized into six groups: gastrointestinal, neuromuscular, central nervous system, hematological, renal, and miscellaneous. Neurological and CNS disorders often occur after significant exposure, while abdominal syndrome indicates a slowly developing intoxication. The former is more frequently seen in children, while the latter is more common among adults.

Discussion

The literary review shows that *Naga* is an ancient metal that has been known since the *Vedic* period. In the initial period of *Rasa Shastra*, *Naga* was primarily

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utilized in *Lohvada* rather than *Dehavada*. It was not until the 12th century A.D. that the practice of *Naga Bhasma* was done following the *Shodhana* and *Marana* of *Naga*. Some drugs are very dangerous and deadly due to the high levels of impurities and toxins they contain, which can be fatal if taken in their raw state. Therefore, *Shodhana* is an initial step before treatment is given. The *Bhavana* or *Dhalana* method is used to conduct the *Samanya Shodhana* of *Naga*. Purifying *Naga* through the *Bhavana* procedure is challenging. *Dhalana* is a *Shodhana* method where the *Naga* is melted and then poured into a specific liquid. When the *Dhalana* method is used for *Shodhana*, the *dhatu* dissolves entirely, with all of its parts being cleansed and physical impurities eliminated. In the *Samanya Shodhana* of Naga *Tila Taila, Takra, Kanji, Go-mutra*, and *Kulattha Kwatha* are each used three times in the *Samanya Shodhana* process. The use of *Tila Taila* makes the *Naga's* transition from hard to soft. *Takra* and *Kanji* are acidic in nature, causing *Naga* to disintegrate after purification. *Naga* becomes softer and more fragile due to the basic qualities of *Go-mutra* and *Kulattha Kwatha*. *Dhalana* is commonly utilized for the specific purification of *Naga*.

Various *Rasagrantha* have utilized different types of *Shodhana* media like *Arka Kshira*, *Nirgundi Swarasa*, *Churnodaka* etc. The special purification of *Naga* with *Churnodaka* is simple because of its highly alkaline nature and easy preparation, making it softer and more brittle compared to the *Samanya Shodhita Naga*, facilitating the preparation of *Naga Bhasma*. The *Jarana* process is carried out prior to the *Marana* procedure. *Jarana* is specifically meant for *Putiloha* such as *Naga, Vanga*, and *Yashada* due to *Putiloha's* lower melting point compared to other metals. Different texts on *Rasashastra* mentions multiple types of *Jarana Dravya*, but typically *Aswattha twaka Churna* is preferred as it efficiently converts *Naga* into powder because of its alkaline properties, facilitating *Naga's* transformation into *Bhasma*. *Marana* is a procedure of creating *Bhasma*. *Manashila* is typically utilized as a *Marana Dravya* due to its quick *Bhasmikarana* process as the *Ariloha* (enemy metal) of *Naga*. The toxicity of metals was not only widely acknowledged, but also thoroughly recorded in numerous *Rasashastra* texts. *Acharyas* recommend using *Swarna Bhasma, Haritaki*, and *Sita* for 3 days to counteract the negative effects of improperly processed or unripe *Naga Bhasma* in treating lead toxicity. *Rasataranginikara* suggests *Vishatinduka* as a remedy for *Nagadosha.*

Conclusion

Despite being classified as a highly toxic heavy metal, *Naga* has been utilized as a medicinal treatment in Ayurveda since the 12th century. The pharmaceutical processes, such as *Shodhana*, *Jarana*, and *Marana*, ensure its safety for therapeutic use. Various techniques have been extensively debated in historical writings for implementing appropriate alterations in *Naga*. The present article reviews various pharmaceutical processes that can be used to convert *Naga* into safe and effective medicinal forms, highlighting its wide therapeutic uses as an important metal. There are so many sophisticated tests like XRD, SEM-EDX, FTIR and heavy metal analysis available to know about the percentage of Lead in the formulation of *Naga* and its compound particle size which are useful to know to ensure the safe use of *Naga*.

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How to cite this article: Shippy Gupta, S.M. Parhate, Anju Chandrakar, Hempushpa Sahu. Critical review on Naga Bhasma. J Ayurveda Integr Med Sci 2024;9:91-99. http://dx.doi.org/10.21760/jaims.9.9.14

Source of Support: Nil, **Conflict of Interest:** None declared.

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