



## Review Article

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### ROLE OF PUTILOHA BHASMA IN COMPLICATIONS OF DIABETES: A REVIEW

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#### ABSTRACT

Life style disorders Diabetes mellitus is now reaching potentially epidemic proportions in India and mortality due to diabetes and its potential complications are enormous and pose significant healthcare burdens on both families and society. Ayurvedic medicines are playing important role in curing various complications of diabetes since ancient period. Various Bhasma (Incinerated metals and minerals) Preparations in Rasashastra (a medicinal branch deals with metals and minerals) has remarkable qualities to alleviate associated ailments of diabetes which remains untreated by modern medical science. Bhasmas has immunomodulation and anti-aging properties. Metallic Bhasma, specially Putiloha Bhasma i.e. incinerated Naga(Lead), Vanga (Tin)and Yashada (Zinc) singly and in formulations are mentioned specially on Prameha (Diabetes)and its complications such as repeated infections, unhealed wounds, carbuncles, muscles weaknesses etc. Amidst increasing mortality due to complication of diabetes it is need of hour to explore our scientific time tested formulations, hence present paper is an attempt to elaborate ancient literature and current researches about these Putiloha Bhasma. Review of classical texts along with national and international Journals was done. It is been observed that Putiloha Bhasma possess ultimate therapeutic efficacy in various complications of Diabetes. Integrative approach of modern medicines and Ayurvedic Bhasmais needed in Pre and post diabetic conditions in order to improve healthy lifestyle of patients.

**Keywords:** Prameha, Putiloha Bhasma, lifestyle

#### INTRODUCTION

Life style disorders Diabetes mellitus is now reaching potentially epidemic proportions in India and mortality due to diabetes and its potential complications are enormous, and pose significant healthcare burdens on both families and society.<sup>1</sup>Ayurvedic medicines are playing important role in curing various complications of diabetes since ancient period. Various Bhasma (Incinerated metals and minerals) Preparations in Rasashastra (specialized branch of Ayurveda deals with pharmaceuticals of metals and minerals) has remarkable qualities to alleviate associated ailments of diabetes which remains untreated by modern medical science. Bhasmas has immunomodulation and anti-aging properties commonly known as Rasayana and has targeted drug delivery due to Sukshma (Can penetrate at cellular level) and Yogavahi (Catalytic action) properties. They are biodegradable and biocompatible which are explained by the quote, "Rasibhavana, Shighravayapti"<sup>2</sup>. Metallic Bhasma of Naga (Lead), Vanga (Tin) and Yashada (Zinc) alone and in formulations commonly called as Putiloha Bhasma<sup>3</sup> are mentioned specially on Prameha (Diabetes) and its complications such as repeated infections, unhealed wounds, carbuncles, muscles weaknesses etc. Putiloha is less costly as compared to Gold and Silver metals, hence Bhasmas prepared from these metals are cost effective. Naga, Yashada and Vanga are useful especially in Vata, Pitta and Kapha predominated symptoms respectively as stated in twenty types of Prameha<sup>4</sup>. Its enormous therapeutic qualities are often

unexplored due to unjustified controversies on its heavy metals content.

Prameha is the pre stage of Madhumeha (Diabetes mellitus) is the one of the most leading disorders, which may increase the risk of secondary complications affecting the eyes, kidneys, nerves, heart, and arteries. It is metabolic diseases having high concentration of glucose in the blood due to less release of insulin from pancreas or inactivity of cells to the insulin<sup>5</sup>.The hyperglycemia in turn damages many of the body's systems leading to diabetic complications, which further exacerbate the diabetic condition and affect the quality of life. Amidst increasing mortality due to complication of diabetes it is need of hour to explore our scientific time tested formulations, so that it gives some hope to diabetes patients for healthy life. Although hypoglycemic drugs in Ayurveda are not quick as compare to modern medicines but various associated symptoms can be relieved by these Bhasma. Hence present paper is an attempt to elaborate various preparations on Diabetes with the help of ancient literature and current researches about these Putiloha Bhasma.

#### Complications of Diabetes (Sign and symptoms of Madhumeha)

Madhumeha (Diabetes) shows mixed sign and symptoms according to the predominance of various Doshasi.eVata,Pita and Kapha. It is tabulated as follows

**Table 1: Complaints of Madhumeha Patients according to Doshas<sup>6</sup>**

Sl. no	Vata Vitiated Complications	Pitta Vitiated Complications	Kapha Vitiated Complications
1	Dourbalya, (Weakness)	Kshudhadhikya (Excessive hunger)	Atimutrata (Excessive micturition)
2	Shrama (Weakness after little exertion)	Trishna (Excessive Thirst)	Karpadsuptata (Numbness in extremities)
3	Pindicodweshtana (Cramps in legs)	Karpadtaldaha (Burning sensation in palms and sole)	Malina danta (Muddy teethes)
4	Avimutrata (Cloudy urine)	AngaGandha (Smelling of Body)	Dehachikkanata (Unhealthy shining of body))
5	Angapida (Body ache)	AtiSweda (Excessive sweating)	Shaithilya (Laziness)
6	Hridshul (Pain in Heart)	Pramehapidica (Diabetes carbuncle)	Murccha (Fainting)

These complaints of diabetes can be compared with complications mentioned by modern science such as Autonomic and periphery neuropathy, Coronary heart diseases, Diabetic ulcer, repeated infections etc.

**Table 2: Various formulation (Rasaushadhies) used in Madhumeha contains Putiloa Bhasmas<sup>7</sup>**

Sl. No	Formulations containing Putiloa Bhasma	Trivanga Bhasma	Vanga Bhasma	Naga Bhasma	Yashad Bhasma
1	Shilajjatwadiwati	✓	-----	-----	-----
2	VasantkumakarRasa	-----	✓	✓	-----
3	Mehakalanal Rasa	-----	✓	-----	-----
4	Panchanana Rasa	-----	✓	-----	-----
5	Chandrakala Rasa	-----	✓	-----	-----
6	Swarna Vanga	-----	✓	-----	-----
7	Vangeswar Rasa	-----	✓	-----	-----
8	BrihatVangeswarRasa	-----	✓	-----	-----
9	Pramehukulantaka	-----	✓	-----	-----
10	VedvidyaVati	-----	-----	✓	-----
11	Vangastaka	-----	✓	-----	-----
12	Yogeswar Rasa	-----	✓	✓	-----
13	VasantaTilaka Rasa	-----	✓	-----	-----
14	Indra Vati	-----	✓	-----	-----
15	BrihatHarisankarRasa	-----	✓	-----	-----
16	Mehakesari Rasa	-----	✓	-----	-----
17	Mehantaka Rasa	-----	✓	-----	-----
18	Apurbamaliniwasanta	-----	✓	-----	-----
19	Pramehachintamani	-----	✓	-----	-----
20	Brihat Somnath Rasa	-----	✓	-----	-----
21	VangaAvaleha	-----	✓	-----	-----

### Properties of Putiloa Bhasma and recent researches

Naga Bhasma mentioned as Snigdha (oily nature), Ushna (Hot nature), Guru (Heavy to digest), Lekhana (Scrapping properties) and Madhur-Tikta (Sweet and bitter) in taste. It acts as good appetizer, increases peristaltic movements, all types of Vatajavikara (Vatadosha dominant disorders) and alleviates Prameha<sup>8</sup>

Vanga Bhasma mentioned as Laghu (Easy for digestion), Sheetal (Cooling property) Ruksha (Dry) in its properties and little bitter and pungent in taste. Therapeutically it acts on Medovikara (Obesity), Kaphvikara (Kaphadosha predominant disorders), rejuvenate, and all types of Prameha<sup>9</sup>. Lagad C. E. & Ingole R. et al in the study on Clinical evaluation of Vanga Bhasma on diabetes on 30 patients showed encouraging result to control the severity of polyuria, intense thirst, blood sugar and Hastapadaladaha, within a short period of treatment<sup>10</sup>.

Yashad Bhasma mentioned as a Katu and Kashaya (pungent) in taste, Sheetal in guna. It is mainly beneficial in Netravikara (Eye disorders), Pandu (Anaemia), Kaphapittajvikara, Pramehaetc<sup>11</sup>. Modern physiology also supports the role of Zinc in the biosynthesis of insulin. Insulin synthesis occurs in beta cells. It takes place in 2 intermediate stages Preproinsulin and its subsequent conversion to proinsulin and insulin. The synthesis of preproinsulin takes place in the endoplasmic reticulum which is cleaved by the protease activity to proinsulin. The resultant

proinsulin is packaged in vesicles and transported to the golgi apparatus. The cleavage of proinsulin, to insulin and "C" peptide occurs in the golgi apparatus. After the removal of "C" peptide the insulin co precipitates with Zinc as micro crystals within the secretory granules<sup>12</sup>.

Zn deficiencies have been shown to affect ocular development, cataracts, age-related macular degeneration, and even diabetic retinopathy.<sup>13</sup> The biological importance of zinc stems primarily from its role in many vital enzyme systems. R N Puri et al mentioned role of zinc in myopic patients in double blind control study which shows subjective improvement in vision with the use of Yashad Bhasma for 2 months with the dose of 250mg twice daily in 60 myopic patients<sup>14</sup>.

Trivanga Bhasma is used in Ikshumeha, Haridrameha, Lalameha (symptoms of pre diabetic state) and Madhumeha. It is specially mentioned in urinary complaints in Madhumeha such as urgency to micturate, frequency of micturition, dribbling of urine etc<sup>15</sup>.

The clinical study conducted on Trivanga Bhasma in comparison with Asanada (A Proprietary drug on diabetes) on 36 patients of diabetes with dose of 125mg TDS showed that Trivanga lowers blood glucose level fasting by 26% and PP by 21%. It is also observed that Trivanga is more useful by 40% in urinary tract symptoms than Asanad<sup>16</sup>.

## DISCUSSION

In Ayurved each and every disease is diagnosed and treated according to Ayurvedic principles of treatment, hence Prameha (Madhumeha) is also having certain line of treatment principles with consideration of Desh (Habitat), Kaal (Timing), Vaya (Age), Prakruti (Nature), Bala (Physical and mental strength) etc. Prameha if not treated in early stage convert into Madhumeha which is said to be Yapya (difficult to treat). Various symptoms (Table 1) in diabetes shows vitiated Doshas predominance apart from raised blood glucose level. So its challenging to alleviate these complaints as it tend to become chronic with times. Complaints like chronic neuropathy, repeated infections, blurred vision ultimately damage vital organs such as heart, kidney and eyes.

Modern medical science is still struggling to counteract these symptoms although they have good hypoglycemic agents. Ayurveda has a solution over these ailments associated with diabetes in the form of Rasaushadhis. Various Bhasma shows unique therapeutic efficiency on Prameha since ancient period. Putiloha bhasma i.e. Naga, Vanga and Yashada Bhasma are specially mentioned for Prameha according to its Vata, Pitta and Kapha Predominance. These Bhasma in single form and in formulation are used by Ayurvedic physicians with various success stories.

From Table 2, it is observed that Vanga Bhasma remains the main constituent of anti-diabetic formulation. Vanga possess Laghu, Ruksha, Bitter and Kashaya rasa which mainly act on Kaphadosha, which has primary predominance in Prameha. Hence it can be said that VangaBhasma can be used in different conditions of the disease with various Anupana. Naga bhasma possess singdha, ushna and Madhur guna hence mostly given in Vata predominance prameha. Yashad bhasma due to its Kashaya and sheeta guna it is used in Pittaj prameha.

Modern medicines rule out its important in Diabetes as it helps in biosynthesis of Insulin molecule. Apart from this it is given as supplement in disorder such as cataract, retinopathy and various degenerative disorders. Yashad Bhasma is used in Prameha, Netravikara and Rasayana since ancient period and its role is proved by various recent researches.

Trivanga Bhasma which is the combination of all three metals is mainly act on urogenital disorder which are common complication in diabetic patients. It helps to strengthen the nerves in pelvic region hence indicated in frequent micturition tendencies. Since Putiloha metals are considered to be have heavy metals content its clinical trials are minimal and due to unjustified controversies over these metals its importance in diabetes complications remain unexplored over a period of time. Bhasma preparations are often blamed for its heavy metal content due to unscientific processing of these Bhasma by some commercialized pharmaceutical industries Also due to complex metabolism process its role is not proved on modern models of research. Recent studies are inadequate to prove its therapeutic efficacy on modern tools of experiments.

So more clinical trials are needed with large number of patients following Ayurvedic diagnostic Criteria. Also lifestyle management, diet control in the form of Pathyapathya (Dietary Dos and Don'ts), stress management are important aspect which should be taken into consideration in order to improve life span of patients.

## CONCLUSION

Since ancient period Putiloha Bhasma are being used in treatment of complications of Madhumeha. It needs to explore its unique therapeutic properties with more clinical studies so that it can benefit poor socio-economic class patients due to its cost-effectiveness. Integrative approach of modern medicines and Ayurvedic Bhasma is needed in Pre and post diabetic conditions so as to improve lifespan of patients.

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