

Ayurvedic Insights into Metabolic Syndrome Through the Lens of *Madhumeha* and *Rasa Shastra*

Pooja Pareek¹, Govind Sahay Shukla², Rajaram Agarwal³, Manisha Goyal⁴,
Ravi Pratap Singh⁵

¹MD Scholar, ²HOD & Professor, ³Associate Professor, ⁴Associate Professor, ⁵Assistant Professor,
PG Dept. Of Ras Shastra & Bhaishajya Kalpana,
Post Graduate Institute of Ayurveda, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurveda University, Jodhpur,
Rajasthan.

Corresponding Author: Dr. Pooja Pareek

DOI: <https://doi.org/10.52403/ijhsr.20251116>

ABSTRACT

Introduction: Metabolic Syndrome (MS) is a multifactorial condition involving interconnected metabolic disturbances such as insulin resistance, dyslipidemia, hypertension, and abdominal obesity, significantly increasing the risk of type 2 diabetes mellitus (T2DM) and cardiovascular diseases. Modern therapies often require polypharmacy, leading to side effects and compliance issues. Ayurveda correlates MS with *Madhumeha* under *Prameha*, emphasizing systemic imbalance caused by *Dosha-Dushya Sammurchana* and *Medo-dushti*. The present study evaluates the potential of Ayurvedic *Rasaushadhis* (herbo-mineral formulations) and lifestyle modifications in addressing the multifactorial nature of MS.

Materials and Methods: A critical review of classical Ayurvedic texts and contemporary literature was conducted using databases such as PubMed, Scopus, and Google Scholar, The Lancet. Relevant studies on *Rasaushadhis* and Ayurvedic concepts of *Madhumeha* were analysed to establish correlations with modern understanding of MS.

Results: Ayurvedic interpretation identifies *Madhumeha* as a *Tridoshaja Vyadhi* with predominance of *Kapha* and *Medo-dushti*. Comparative analysis demonstrates a strong correlation between *Madhumeha* and MS pathogenesis, involving insulin resistance, dyslipidemia, and inflammation. *Rasaushadhis* such as *Vanga Bhasma*, *Abhraka Bhasma*, *Tamra Bhasma*, *Naag Bhasma*, *Yasad Bhasma*, *Chandraprabha Vati*, and *Arogyavardhini Vati* exhibit hypoglycemic, lipid-lowering, and antioxidant actions, validated through preclinical and clinical studies.

Discussion and Conclusion: Ayurvedic *Rasaushadhis*, owing to their *Laghu*, *Sukshma*, and *Yogavahi* properties, offer a multi-target therapeutic strategy addressing metabolic dysfunctions, *Agnimandya*, and *Medo-dushti*. Integration of these formulations with diet and yoga provides a holistic, safe, and sustainable approach for managing metabolic syndrome, potentially reducing dependence on multiple modern pharmacotherapies.

Keywords: Insulin Resistance, *Dosha Dushya Sammurchana*, *Medo-dushti*, Herbo-mineral Formulations, Polypharmacy, Multi-target Therapy.

INTRODUCTION

Metabolic syndrome (MS) is a complex condition involving multiple interconnected risk factors that increase the likelihood of developing atherosclerotic cardiovascular disease (CVD) and type 2 diabetes (T2DM).¹ It is typically characterized by abdominal obesity, high blood pressure, insulin resistance, and a state of chronic inflammation and increased blood clotting. People with MS often show an unhealthy lipid profile, including high triglyceride levels, elevated apolipoprotein B and LDL particle count, and reduced HDL (good) cholesterol.² High levels of free fatty acids (FFA) interfere with insulin signaling, contributing to a greater risk of developing metabolic syndrome (MS) and type 2 diabetes mellitus (T2DM).³

Obesity and metabolic syndrome (MS) have emerged as significant global public health issues due to their widespread occurrence. It is estimated that 25% of adults worldwide are affected by MS.⁴ In India and other South Asian countries, the rates of obesity and MS are rising swiftly, contributing to a higher risk of death and illness from cardiovascular disease (CVD) and type 2 diabetes mellitus (T2DM).⁵ As reported by the World Health Organization in 2003, the global adult population with diabetes is expected to nearly double—from 171 million in 2000 to 366 million by 2030.⁶

The high prevalence of Metabolic Syndrome (MS), there is an urgent need to explore effective treatment options to prevent the onset of serious related health conditions. Because MS is a complex disorder involving multiple physiological targets, no single treatment can fully address all aspects of the condition. Current management strategies focus on lowering LDL cholesterol, controlling high blood pressure, and improving glucose tolerance. The primary approach to managing MS involves significant changes in diet and lifestyle—reducing calorie intake, following a balanced, healthy diet, and engaging in regular physical activity.^{7,8} High-carb, low-Fiber, and energy-dense diets increase the

risk of Metabolic Syndrome. Saturated fats worsen the condition, while PUFAs help lower triglycerides, blood pressure, CRP, and IL-6. MUFAs also improve lipid profiles by reducing triglycerides and LDL, and raising HDL. Whole grains and Fiber-rich foods like legumes, fruits, and vegetables support the prevention of MS and type 2 diabetes.^{9–11} Intermittent fasting has been shown to support weight loss, lower insulin resistance, improve lipid profiles, and reduce blood pressure, thereby lowering the risk of both diabetes and cardiovascular diseases.¹² Pharmacological treatments for MS include statins, fibrates, nicotinic acid, ACE inhibitors, metformin. but managing multiple symptoms usually requires several medications, along with associated comorbidities, often results in long-term drug use.¹³ This increases both the financial burden and the risk of side effects. To address these challenges, the present study was designed to evaluate the effects of a traditional Ayurvedic herbomineral formulation, combined with lifestyle interventions such as diet and yoga, in managing MS.

Madhumeha is a well-described condition in classical literature, classified under *Prameha*, a group of disorders related to metabolism and the urinary system. From a modern scientific perspective, *Madhumeha* closely aligns with type 2 diabetes mellitus and shows significant overlap with the contemporary understanding of Metabolic Syndrome (MS). Both are chronic, systemic metabolic disorders characterized by elevated blood sugar, abnormal lipid levels, central obesity, and involvement of multiple body systems.

The concept of *Dosha Dushya Sammurchana* is fundamental to understanding disease pathology in Ayurveda. The term *Sammurchana* refers to the intricate process of interaction or union, wherein imbalanced *Doshas* interact with vulnerable *Dushyas* (body tissues), ultimately resulting in the development of disease.¹⁴

MATERIALS & METHODS

An extensive literature review was conducted using both classical Ayurvedic texts and writings by renowned Ayurvedic scholars, as well as contemporary medical literature. Data was gathered from trusted medical databases like PUBMED, Goggle scholar, *The Lancet* were selected for analysis.

RESULT & DISCUSSION

I. Madhumeha in Ayurveda

The word *Prameha* means excessive micturition of malformed urine. There are similarities in *Prameha* and diabetes in terms of causative factors, clinical presentation, and to some extent, therapeutic aspects. Acharya Madhav said *Prameha* is that condition in which, with intensity, there is excessive, copious, and increasingly profuse urinary discharge.¹⁵

Prameha is a *Tridoshaja Vyadhi* (a disease involving all three of the psychophysiological principles known as *Doshas* [*Vata*, *Pitta*, and *Kapha*]), it is basically a disease with *Kapha* predominance. There are 20 subtypes of *Prameha* due to the interaction of the three *Doshas* and 10 *Dushyas*.¹⁶ *Madhumeha* is one of the four *Vataja Prameha* and is often considered the terminal and most difficult-to-treat stage of *Prameha*. This stage arises either primarily (*sahaja/genetic*)

or as a result of untreated or poorly managed *Kaphaja* or *Pittaja Prameha*.¹⁷

In *Madhumeha*, the *dushti* (vitiating) of *Rasa*, *Rakta*, *Mamsa*, and *Meda dhatus* plays a central role in pathogenesis, both in classical and modern interpretations of *Ayurveda*.

Medo dhatu (adipose tissue) is recognized as the principal *Dushya*, or target tissue, in the development of *Madhumeha/Prameha*. When *Kapha dosha* is aggravated—often due to a sedentary lifestyle, unhealthy dietary habits, or disturbances in *Agni* (digestive/metabolic fire)—there is either an abnormal increase (*Medo vridhhi*) or laxity (*shaithilya*) of *Medo dhatu*. This results in improper metabolism and excessive accumulation of fat, which in turn disrupts the normal balance of bodily fluids. The consequence is the overflow of glucose and lipids into the urine, manifesting as the clinical features of *Madhumeha*. The pathological state of *Medo dhatu* is reflected in symptoms like frequent urination, excessive hunger and thirst, and obesity, which are commonly observed in diabetic individuals.¹⁸ Role of Each Dhatu in *Madhumeha*¹⁹ described in table no. 1, correlation between *Madhumeha* and Metabolic Syndrome described in table no. 2.

Table no. 1

Dhatu	Role in Madhumeha	Dushti Effect
Rasa	Nutrition, fluid balance	Dhatu kshaya, altered nourishment
Rakta	Oxygenation, life support	Microcirculatory damage, cellular hypoxia
Mamsa	Muscular strength	Debility, myopathy, progressive emaciation
Meda	Fat tissue; lubrication	Excess <i>shaithilya</i> , increased urination

Table no. 2

Ayurvedic Term	Modern Equivalent
<i>Prameha/Madhumeha</i>	Type 2 Diabetes + Metabolic Syndrome ²⁰
<i>Medo-dushti</i>	Dyslipidemia, central obesity ²¹
<i>Agnimandya</i>	Slow metabolism, insulin resistance ²²
<i>Kapha-Pitta</i> vitiating	Hyperinsulinemia, inflammation
<i>Vata</i> involvement	Neuropathy, degeneration
<i>Ojas kshaya</i>	Immune dysfunction, fatigue ²³
<i>Tridosha & Dhatu dushti</i>	Multi-system disorder (liver, kidney, etc.) ²²

II. Need for Multi-Target Therapy in MS

Unlike the modern approach to metabolic syndrome—which relies on single-target

drugs for diabetes, cholesterol, and hypertension, often resulting in multiple medications, higher risk of side effects, and

poor compliance.²⁴ Metabolic syndrome, when correlated with *Madhumeha*, involves interconnected pathological processes: insulin resistance, dyslipidaemia, hypertension, and chronic inflammation. Mono-target treatment strategies struggle to address the underlying systemic imbalances of this multifactorial disease. *Ayurveda*'s approach, especially through multi-target therapies such as *Rasaushadhis* (herbo-mineral formulations), addresses both the underlying causes and symptoms of metabolic syndrome as a whole. It works on correcting *Agnimandya* (metabolic dysfunction), *Medo-dushti* (lipids/fat tissue imbalance), *Tridosha* vitiation (dosha imbalances), and *Ojas kshaya* (immune depletion), restoring balance across various tissues and organ systems.²⁵

A unique arm of *Ayurvedic* treatment—*Rasaushadhis* (herbo-mineral metallic preparations)—stands out for its multi-target efficacy. *Rasaushadhis* such as *Chandraprabha Vati*, *Vanga Bhasma*, *Abhraka Bhasma* etc. are referenced in classical and modern literature for their ability to act simultaneously on blood sugar, lipid profile, inflammatory status, and organ function, supporting both rapid symptomatic relief and deeper systemic balance. Unlike sequential addition of mono-target modern drugs, *Rasashastra*-derived medicines aim to synergistically modulate metabolic pathways, detoxification, tissue nutrition, and immune protection—reducing the necessity for polypharmacy that is common in conventional metabolic syndrome management.^{26,27}

III. Role of *Rasaushadhi* in Managing Metabolic Syndrome²⁸⁻³⁰

Rasaushadhi, the esteemed herbo-mineral formulations of *Ayurveda*, possess several distinctive features that make them highly suitable for managing chronic and complex conditions. These medicines are characterized by properties such as *Laghu* (lightness), *Sukshma* (subtlety), *Vyavayi* (rapid systemic distribution), and *Yogavahi* (synergistic action), which facilitate quick

absorption, deep tissue penetration, and effective distribution throughout the body. Their pharmaceutical processes, including *shodhana* (purification) and *marana* (calcination), reduce the particle size to the nanoscale, a fact validated by modern analytical techniques, thereby significantly enhancing their bioavailability and therapeutic impact. *Rasaushadhis* work holistically to correct metabolic impairments (*Agnimandya*), unblock obstructed microchannels (*Srotorodha*), and restore tissue health (*Dhatu dushti*), effectively addressing both root causes and symptoms. Their potent, fast-acting, minimally dosed, and long-lasting nature makes them invaluable in treating refractory and degenerative diseases, positioning them as vital tools in integrative healthcare systems.

Rasaushadhis Relevant to MS

1. *Vanga Bhasma*: Hypoglycemic and Antidiabetic Action

Clinical trials have demonstrated that *Vanga Bhasma* (125 mg thrice daily) significantly improves blood glucose control in diabetic patients, with notable reductions in both fasting and postprandial sugar within 21 days. This supports its traditional use in *Prameha* and metabolic conditions, with classical references supporting its *Kapha-Meda* regulating properties.³¹

Additional studies confirm that *Vanga Bhasma* is effective against symptoms associated with diabetes mellitus (*Madhumeha*), and animal models show improved glucose and lipid metabolism without hypoglycemic risk.³²

2. *Abhraka Bhasma*: Lipid and Glucose Regulation

A 2021 study in the field of toxicology and pharmacology, conducted on diabetic rat models, found that *Abhraka Bhasma* (mica-derived ash) is safe even at higher doses. The treatment resulted in significant decreases in blood glucose, total cholesterol, and triglyceride levels. Its effectiveness was comparable to that of Metformin, and it also

showed a healthy increase in body weight without any signs of organ toxicity.³³

Comparable studies have shown enhanced glucose tolerance and antioxidant effects, with the likely mechanism involving increased regeneration of pancreatic β -cells.³⁴

3. *Tamra Bhasma*: Antioxidant and Lipid-Lowering Effects:

Tamra Bhasma has been shown to effectively reduce serum lipid levels and improve liver function markers in experimental studies, supporting its traditional use in managing *Medohara* and *Prameha* as described in classical *Ayurvedic* texts.³⁵

4. *Naag Bhasma*: Antidiabetic and Insulin Sensitization Effects:

The anti-diabetic potential of Naga Bhasma has been demonstrated in alloxan-induced diabetic rats, showing notable improvements in fasting blood glucose levels, glucose tolerance, and lipid profiles.³⁶

5. *Yasad Bhasma*: Antidiabetic and Insulin Sensitization Effects:

Yashada Bhasma, a zinc-based *Ayurvedic* remedy, has been shown to improve insulin sensitivity and glucose tolerance, reduced blood glucose and insulin levels by up to 32%, with effects comparable to pioglitazone. These benefits are linked to enhanced insulin secretion, glucose uptake, and antioxidant activity.³⁷

6. *Chandraprabha Vati*

A traditional polyherbal-Herbo mineral formulation *Chandraprabha Vati*, has demonstrated significant antihyperglycemic, lipid-lowering, and insulin-sensitizing properties. In diabetic animal models, a dose of 200 mg/kg effectively reduced plasma glucose, cholesterol, and triglyceride levels, while also improving glucose tolerance. Network pharmacology studies highlight that its diverse bioactive constituents act on multiple genes associated with metabolic

syndrome and inflammatory pathways, emphasizing its broad systemic regulatory potential.³⁸

7. *Arogyavardhini Vati*

Clinical studies indicate that *Arogyavardhini Vati*, when used alongside lifestyle modifications, leads to greater reductions in waist circumference, serum triglycerides, and systolic blood pressure, while also enhancing HDL levels. Its actions as a metabolic enhancer and weight reducer help improve insulin sensitivity by targeting the root causes of metabolic imbalance.²⁷

CONCLUSION

The correlation between *Madhumeha* and Metabolic Syndrome underscores *Ayurveda*'s systemic approach to complex metabolic disorders. *Rasaushadhis*, with their nanoscale bioactivity and multitarget therapeutic properties, address glucose dysregulation, lipid imbalance, and inflammation comprehensively. When integrated with dietary and yogic interventions, these formulations offer a cost-effective, safe, and sustainable alternative for managing MS and preventing its progression to type 2 diabetes and cardiovascular complications.

Declaration by Authors

Ethical Approval: Not required

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Grundy SM. Metabolic Syndrome: Connecting and Reconciling Cardiovascular and Diabetes Worlds. *J Am Coll Cardiol*. 2006 Mar;47(6):1093–100.
2. Wilkinson MJ, Manoogian ENC, Zadourian A, Lo H, Fakhouri S, Shoghi A, et al. Ten-Hour Time-Restricted Eating Reduces Weight, Blood Pressure, and Atherogenic Lipids in Patients with Metabolic Syndrome. *Cell Metab*. 2020 Jan;31(1):92-104.e5.

3. Chandake S, Tubaki BR, Gonugade V, Sharma O. Efficacy of tryushnadya churna in metabolic syndrome with obesity – A randomized double blind controlled clinical trial. *J Ayurveda Integr Med.* 2024 Jul;15(4):100973.
4. Saklayen MG. The Global Epidemic of the Metabolic Syndrome. *Curr Hypertens Rep.* 2018 Feb 26;20(2):12.
5. Prasad DS, Kabir Z, Dash AK, Das BC. Abdominal obesity, an independent cardiovascular risk factor in Indian subcontinent: A clinico epidemiological evidence summary. *J Cardiovasc Dis Res.* 2011 Oct;2(4):199–205.
6. Gupta A, Ali A, Tewari P, Agrawal N, Patel R, Byadgi P. Association of Kaphaja and Kapha-Pittaja Prakriti and methylenetetrahydrofolate reductase C677T allele with type 2 diabetes. *AYU (An international quarterly journal of research in Ayurveda).* 2018;39(3):146.
7. Saklayen MG. The Global Epidemic of the Metabolic Syndrome. *Curr Hypertens Rep.* 2018 Feb 26;20(2):12.
8. Sperling LS, Mechanick JI, Neeland IJ, Herrick CJ, Després JP, Ndumele CE, et al. The Cardiometabolic Health Alliance. *J Am Coll Cardiol.* 2015 Sep;66(9):1050–67.
9. Jakobsen MU, Dethlefsen C, Joensen AM, Stegger J, Tjønneland A, Schmidt EB, et al. Intake of carbohydrates compared with intake of saturated fatty acids and risk of myocardial infarction: importance of the glycemic index. *Am J Clin Nutr.* 2010 Jun;91(6):1764–8.
10. Borneo R, León AE. Whole grain cereals: functional components and health benefits. *Food Funct.* 2012;3(2):110–9.
11. Schulze MB, Liu S, Rimm EB, Manson JE, Willett WC, Hu FB. Glycaemic index, glycaemic load, and dietary Fiber intake and incidence of type 2 diabetes in younger and middle-aged women. *Am J Clin Nutr.* 2004 Aug;80(2):348–56.
12. Castro-Barquero S, Ruiz-León AM, Sierra-Pérez M, Estruch R, Casas R. Dietary Strategies for Metabolic Syndrome: A Comprehensive Review. *Nutrients.* 2020 Sep 29;12(10):2983.
13. Grundy SM, Cleeman JI, Daniels SR, Donato KA, Eckel RH, Franklin BA, et al. Diagnosis and Management of the Metabolic Syndrome. *Circulation.* 2005 Oct 25;112(17):2735–52.
14. Om Prakash Suthar, Kanupriya Gupta, Pankaj Marolia, Ved Prakash. Dosh Dushya Sammurchana in Disease Manifestation - A Review. *Journal of Ayurveda and Integrated Medical Sciences.* 2025 Jul 21;10(6):303–7.
15. Acharya Madhav. Madhav nidhan. madhukosh, editor. Vol. verse 33/1.
16. Ruby Kumar, Deepak Mishra, Manoj Kumar. Madhumeha: A Term Often Misused for Diabetes Mellitus. *International Journal of Health Sciences & Research.* 2018 May;8(5).
17. Sharma H, Chandola HM. *Prameha in Ayurveda: Correlation with Obesity, Metabolic Syndrome, and Diabetes Mellitus. Part 1–Etiology, Classification, and Pathogenesis.* *The Journal of Alternative and Complementary Medicine.* 2011 Jun;17(6):491–6.
18. Naresh Kumar Kumawat. CONCEPT OF MEDO DHATU: AN AYURVEDIC PRESPECTIVE. *World J Pharm Res.* 4(7).
19. Dr. Priyanka Solanki, Dr. Ajith Krishnan. A CRITICAL INTERPRETATION OF RAKTA DHATU IN AYURVEDA. *Journal of Population Therapeutics & Clinical Pharmacology.*
20. Sharma H, Chandola HM. *Prameha in Ayurveda: Correlation with Obesity, Metabolic Syndrome, and Diabetes Mellitus. Part 1–Etiology, Classification, and Pathogenesis.* *The Journal of Alternative and Complementary Medicine.* 2011 Jun;17(6):491–6.
21. Prakash V, Parashar D, Sangeeta. A Conceptual Study of Medo Dustin w.s.r. to Dyslipidaemia in Ayurveda. *International Research Journal of Ayurveda & Yoga.* 2022;05(09):92–6.
22. Ravi Dabas. CORRELATION OF PRAMEHA (MADHUMEHA) WITH DIABETES MELLITUS. *Indian Journal of Agriculture and Allied Sciences.*
23. Dr. Anjali Uniyal, Prof. A.S. Baghel. Interrelation Between Ojas and Autoimmune disorders: A Narrative Review. *J Emerg Technol Innov Res.* 2014;11(2).
24. Grundy SM, Cleeman JI, Daniels SR, Donato KA, Eckel RH, Franklin BA, et al. Diagnosis and Management of the Metabolic Syndrome. *Circulation.* 2005 Oct 25;112(17):2735–52.

25. Dr. Dattatraya L. Shinde, Prof. Dr. Virendra Baburao Pawar. Ayurvedic Management of Diabetes Mellitus: A Comprehensive Review. *Nanotechnol Percept*.
26. Khanal H, Abhishek Upadhyay, Nischal Gupta, Ram Kishor Joshi. AYURVEDIC RASAUSADHIES USED IN THE MANAGEMENT OF PRAMEHA W.S.R. TO DIABETES MELLITUS. *AYUSHDHARA*. 2020 Aug 12;2725–34.
27. Padhar B, Dave A, Goyal M. Clinical study of Arogyavardhini compound and lifestyle modification in management of metabolic syndrome: A double-blind placebo controlled randomized clinical trial. *AYU (An international quarterly journal of research in Ayurveda)*. 2019;40(3):171.
28. Sreenisha SS, Parvathy C. Rasaushadhis - the Preeminent Key in Ayurveda Treatment. *Journal of Complementary Medicine & Alternative Healthcare*. 2023;12(3).
29. Dr. Dhanashree Ghotkar. Rasaushadhis in the management of acute/ emergency clinical condition. *World Journal of Pharmaceutical Research*. 2019;8(10).
30. Savrikar S, Ravishankar B. Introduction to 'Rasashastra'- The Iatrochemistry of Ayurveda. *African Journal of Traditional, Complementary and Alternative Medicines*. 2011 Jul 15;8(5S).
31. Jacob J, P S, Rao S R. PHARMACOGNOSTICAL AND PHYTOCHEMICAL ESSAY OF BHANDIRA (*Clerodendrum infortunatum* L.). *International Ayurvedic Medical Journal*. 2020 Sep 11;09(1):4348–57.
32. Jalpa Jani, Kapil Pandya. CLINICAL EVALUATION OF VANGA BHASMA PREPARED BY TWO DIFFERENT METHODS IN THE MANAGEMENT OF MADHUMEHA (DIABETES MELLITUS). *International Journal of Applied Ayurved Research*.
33. Gopinath H, Shivashankar M. A study on toxicity and anti-hyperglycemic effects of Abhrak Bhasma in rats. *J Ayurveda Integr Med*. 2021 Jul;12(3):443–51.
34. Divya P, Medikeri Surekha. Magnitude of Bhasma in handling Madhumeha (Diabetes Mellitus) - A Critical Review. *Journal of Ayurveda and Integrated Medical Sciences* |. 2017;2(4).
35. C. Nille G, S. Nille O, K. Chaudhary A. Historical Review of Copper-based Ancient Ayurvedic Medicine: Tamra Bhasma. *International Journal of Innovative Science and Research Technology (IJISRT)*. 2024 Jun 21;380–90.
36. Deshmukh SM, Kshirsagar SJ, Bhingare CL. SCREENING OF ANTIDIABETIC EFFECT OF NAGA BHASMA IN ALLOXAN INDUCED HYPERGLYCEMIC RATS. *Int J Res Ayurveda Pharm*. 2013 Apr 28;4(2):240–3.
37. Umrani RD, Paknikar KM. *Jasada Bhasma*, a Zinc-Based Ayurvedic Preparation: Contemporary Evidence of Antidiabetic Activity Inspires Development of a Nanomedicine. *Evidence-Based Complementary and Alternative Medicine*. 2015; 2015:1–9.
38. Dongre P, Majumdar A. Network pharmacology analysis of Chandraprabha Vati: A new hope for the treatment of Metabolic Syndrome. *J Ayurveda Integr Med*. 2024 May;15(3):100902.

How to cite this article: Pooja Pareek, Govind Sahay Shukla, Rajaram Agarwal, Manisha Goyal, Ravi Pratap Singh. *Ayurvedic Insights into metabolic syndrome through the lens of Madhumeha and Rasa Shastra*. *Int J Health Sci Res*. 2025; 15(11):116-122. DOI: <https://doi.org/10.52403/ijhsr.20251116>
