

**LITERARY, ANALYTICAL AND OBSERVATIONAL CLINICAL
EVALUATION OF 500 MG DC-24 CAPSULE, IN DIABETES
MELLITUS (MADHUMEHA)****¹Dr. Ravi Raj*, ²Dr. Pramod Bhardwaj and ³Dr. Naveen Aggarwal**

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Article Received on
30 June 2025,

Revised on 01 July 2025,
Accepted on 01 July 2025

DOI: 10.20959/wjpr202514-37864



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ABSTRACT

Diabetes Mellitus has been acknowledged as a major health concern since ancient times, impacting people across different cultures and civilizations. It is a multifaceted metabolic condition marked by consistently high blood sugar levels due to insufficient insulin production, insulin resistance, or a combination of both. In recent years, the global incidence of diabetes has surged, largely because of sedentary behavior and poor eating habits. In Ayurveda, this disorder is closely related to "Madhumeha," a variant of "Prameha," which is attributed to the imbalance of Kapha dosha, derangement of Medo dhatu (fat metabolism), and weakened digestive fire (Agni). These disruptions hinder normal metabolic functions and contribute to the onset and progression of the disease. Interpreting Madhumeha through Ayurvedic principles provides a comprehensive and holistic approach to its prevention and treatment. As per the latest figures from the International Diabetes Federation (IDF), around 72.9 million people in

India are currently affected by Diabetes Mellitus. Ayurvedic classics describe this condition as Madhumeha, a type of Vataja Prameha, where the patient passes urine that is sweet in taste. This long-standing metabolic disorder stems from doshic imbalances—especially

Vata—as well as Medo dhatu irregularities and impaired Agni, mirroring the characteristics of type 2 Diabetes Mellitus in modern medicine.

A clinical study was conducted on 130 individuals who came in with common symptoms such as persistent body aches, a sweet taste in the mouth, burning sensation in the feet, excessive hunger and thirst, frequent urination, and heightened mental stress. Based on detailed clinical evaluation, physical examination, and laboratory investigations, all participants were diagnosed with Madhumeha—known in modern medicine as Type 2 Diabetes Mellitus. In Ayurveda, this condition falls under the broader category of Prameha, a chronic metabolic disorder.

To manage the condition, each patient was administered **DC-24 Capsules** (500 mg), twice daily—once before breakfast and once before dinner—alongside personalized dietary guidance and recommended lifestyle changes. Regular follow-up assessments were carried out every 7 days over a span of **60 days**.

By the end of the first month, patients began showing noticeable improvements in their symptoms and overall health. These positive changes continued throughout the study duration, indicating that the integrative treatment approach—herbal supplementation combined with diet and lifestyle management—was effective.

Overall, the administration of a **daily dose of two capsules** of DC-24 (500 mg twice a day) led to a **statistically significant improvement in blood sugar control** ($P < 0.005$), underscoring the potential of Ayurvedic interventions in managing Type 2 Diabetes Mellitus naturally and holistically.

INTRODUCTION

Since ancient times, Indian physicians have recognized **Diabetes Mellitus** as *Madhumeha*, a condition named for the noticeable sweetness in the urine, which was seen to attract ants. In Ayurveda, Madhumeha is identified as a Vata-dominant type of *Prameha*, a broader term used to describe metabolic disorders affecting urine and fat metabolism. Due to its severe and chronic nature, it's referred to as *Mahagada*—a "great disease" in classical Ayurvedic texts. Over time, Madhumeha has grown into a widespread modern health challenge, with rising global cases linked to conditions like obesity, prediabetes, metabolic syndrome, and sedentary lifestyles. One of the hallmark symptoms described in Ayurveda—*Prabhootavila*

Mutrata (frequent, turbid urination)—closely mirrors the modern clinical sign of **polyuria**. As per global estimates in 2017, over **424.9 million adults** were living with diabetes, with **India ranking second** in the world in terms of total patients.

In modern medicine, **Type 2 Diabetes Mellitus** is seen as a complex disorder marked by persistently high blood sugar due to the body's inability to produce enough insulin or respond to it properly. Common symptoms include frequent urination (*polyuria*), extreme thirst (*polydipsia*), and increased hunger (*polyphagia*). If uncontrolled, it may lead to serious complications such as diabetic coma, kidney failure, heart disease, foot ulcers, and vision loss (retinopathy and cataracts).

Ayurveda classifies *Prameha* as a **Tridoshaja Vyadhi**, meaning all three doshas (Vata, Pitta, Kapha) are involved, though it often begins due to Kapha and Medo dhatu (fat tissue) imbalance caused by overindulgent food and lifestyle choices (*Santarpanajanya*). According to *Acharya Sushruta*, these imbalances allow toxins and vitiated doshas to move into the urinary system (*Mutravaha Srotas*) and bladder (*Basti*), disrupting metabolism and causing *Madhumeha*.

Even though Ayurveda considers **Madhumeha** (Type 2 DM) as *Asadhya* (incurable) in its advanced stages, early and consistent treatment can slow its progression significantly. Ayurvedic treatment relies on a threefold strategy

1. **Shamana Chikitsa** – herbal formulations that stabilize blood sugar
2. **Shodhana Chikitsa** – detox procedures like Panchakarma
3. **Pathya-Ahara Vihara** – strict diet and lifestyle discipline

The **DC-24 capsule** is a modern Ayurvedic formulation based on these principles. Prepared using a carefully standardized process, each 500 mg capsule combines traditional anti-diabetic herbs known for improving insulin function, nourishing the pancreas, and promoting better glucose uptake by the body. The herbs also support strength (*Balya*) and rejuvenation (*Rasayana*), offering overall metabolic benefits for diabetic patients and healthy individuals alike.

This integrative approach, rooted in classical Ayurvedic wisdom and adapted for modern needs, highlights the potential of natural therapies in managing chronic metabolic conditions like Type 2 Diabetes Mellitus.

AIMS AND OBJECTIVE

The present work was undertaken with the following aims and objectives.

1. Conceptual and hypothetical evaluation of **Madhumeha (Diabetes mellitus, type-2)**, a form of **Vataja Prameha**.
2. Pharmaceutical, Analytical and Clinical evaluation of an *Ayurvedic* compound “**500 mg DC-24**” in the management of **Madhumeha (Diabetes mellitus, type-2)**, a form of **Vataja Prameha** and acting as a compound of Hypoglycaemic, Balya & Rasayana Drugs.

MATERIAL AND METHODS

Selection of Cases: Patients with **Madhumeha (Diabetes mellitus, type-2)**, **Vataja Prameha**, Loss of Energy (fatigue), body ache, sweet taste of mouth, burning sensation at sole, excessive hunger, excessive thirst, excessive mental stress and increased frequency of micturition, selected randomly from OPD of P.G Department of Rasa Shastra at Shri Krishna Govt Ayurvedic College Kurukshetra and its action as Vajikarak Balya & Rasayana.

Age Group

130 Individual from the age group of 35 to 55 Years were taken for **Madhumeha (Diabetes mellitus, type-2)**, **Vataja Prameha**, Loss of Energy (fatigue), body ache, sweet taste of mouth, burning sensation at sole, excessive hunger, excessive thirst, excessive mental stress and increased frequency of micturition.

Selection of healthy volunteers

The observational clinical intervention took place from July 2024 to September 2024 at OPD of P.G Department of Rasa Shastra at Shri Krishna Govt Ayurvedic College Kurukshetra. The trial design involved the enrolment of volunteers aged between 25 to 60 Years without consideration of their religious affiliation, income level, or occupation. Initially, a total of 130 volunteers were screened for primary eligibility, but 20 individuals were subsequently excluded for various reasons.

Ultimately, **110 volunteers** were selected for the this trial and were randomly assigned to one particular group: that receiving **500 mg DC-24** for the **Madhumeha (Diabetes mellitus, type-2)**, **Vataja Prameha**, Loss of Energy (fatigue), Body Ache, Sweet Taste of mouth, Burning Sensation at sole, Excessive Hunger, Excessive Thirst, Excessive Mental Stress and

Increased frequency of micturition. Eligibility for participation in the study was determined by specific inclusion and exclusion criteria.

Inclusion criteria

Male / female, married or unmarried patients suffering from **Madhumeha (Diabetes mellitus, type-2)**, **Vataja Prameha**, Loss of Energy (fatigue), **Body Ache**, Sweet Taste of mouth, Burning Sensation at sole, Excessive Hunger, Excessive Thirst, Excessive Mental Stress and Increased frequency of Micturition.

Inclusion criteria involved clinically assessed healthy Male / female , married or unmarried patients aged between 25 to 50 Years, irrespective of their religious beliefs and income status.

These participants were required to be free from chronic, organic, or severe diseases and should not be taking any supplements or vitamins.

Exclusion criteria

1. Age below 25 years and above 60 years.
2. Patients suffering from chronic, organic, or severe diseases and should not be taking any supplements or vitamins, carcinoma, acquired immunodeficiency syndrome, tuberculosis, congenital abnormalities of genital organs, other disease like phimosis, ulceration, hydrocele, spinal cord lesions, etc.

Investigations

- Routine haematological investigations: Haemoglobin %, Total Leucocyte count, Differential Leucocyte count, Erythrocyte Sedimentation Rate.
- Biochemical investigations: Fasting Blood Sugar, Post Prandial Blood Sugar, lipid profile, blood urea, serum creatinine.
- Urine for routine sugar and microscopic examination.

Assessment criteria: Effect of the therapy will be assessed on the basis of improved status in **Madhumeha (Diabetes mellitus, type-2)**, **Vataja Prameha**, Loss of Energy (fatigue), body ache, sweet taste of mouth, burning sensation at sole, excessive hunger, excessive thirst, excessive mental stress and increased frequency of micturition.

DRUG DOSE DURATION

General contents of **500 mg DC-24 Capsule** are mentioned below

Table 1 Ingredients of 500 mg DC-24 Capsule.

Hindi or Sanskrit Name of Herb	Latin or English Name	Morpho-logical Part Used	Part Used	Each Capsules Contains	Book Name Page No.
Ama Haldi	Curcuma Amada	Root	Ext.	50 mg	BPN 117
Giloy	Tinospora Cordifolius	Stem	Ext.	60 mg	BPN 269-271
Safed Musli	Asparagus Adscendens	Root	Ext.	15 mg	BPN 77
Methi	Trigonella Foenum-Graecum	Seed	Ext.	50 mg	BPN 37-38
Neem	Azadirachta Indica	Leaves	Ext.	60 mg	BPN 329-331
Karela	Momordica Charantia	Fruit	Ext.	60 mg	BPN 683-684
Jamun	Eugenia Jambolana	Seed	Ext.	60 mg	BPN 570
Bilav Patr	Aegle Marmelos	Fruit	Ext.	60 mg	BPN 275
Gudmar	Jymnema Sylvestris	Leaves	Ext.	60 mg	BPN 443-444
Minerals (Bhasma, Pishti etc.) :					
Shudh Shilajeet	Asphaltum Punjabinum	Ext	Extract	25 mg	BPN 612

500 mg DC-24 is an Ayurvedic Patent Medicine Duly Approved by AYUSH department of Haryana and prepared in the R n' D Lab of NUTRILEY HEALTHCARE PRIVATE LIMITED Unit: Plot No. 16, Moja Patan, Near Arya Nagar, Hisar-125001 (Haryana) (INDIA) and marketed by same.

Properties of herbs which formulate 500 mg DC-24 are said as below

Herb	Key Properties	Role in Managing Diabetes (Madhumeha)
Ama Haldi (<i>Curcuma amada</i>)	Anti-inflammatory, antioxidant	Helps reduce insulin resistance and inflammation linked with diabetes.
Giloy (<i>Tinospora cordifolia</i>)	Immunomodulator, anti-hyperglycemic	Enhances glucose metabolism, strengthens immunity, and reduces blood sugar levels.
Safed Musli (<i>Chlorophytum borivilianum</i>)	Adaptogen, rejuvenative	Tones the body, reduces fatigue in diabetics, and improves strength and stamina.
Methi (Fenugreek) (<i>Trigonella foenum-graecum</i>)	Hypoglycemic, rich in soluble fiber	Lowers blood sugar by slowing carbohydrate digestion and improving insulin sensitivity.
Neem (<i>Azadirachta indica</i>)	Bitter, anti-diabetic, blood purifier	Helps lower blood sugar, detoxifies the blood, and enhances pancreatic function.
Karela (Bitter gourd) (<i>Momordica charantia</i>)	Insulin-like peptides, hypoglycemic	Contains charantin and polypeptide-p which act like insulin and reduce blood glucose levels.
Jamun (Java plum) (<i>Syzygium cumini</i>)	Astringent, hypoglycemic	Seeds especially reduce blood sugar and improve insulin sensitivity.

Herb	Key Properties	Role in Managing Diabetes (Madhumeha)
Bilva Patra (<i>Aegle marmelos</i>)	Digestive, anti-diabetic	Helps regulate metabolism and lowers sugar levels naturally.
Gudmar (<i>Gymnema sylvestre</i>)	Sugar destroyer, hypoglycemic	Reduces sugar absorption in the intestine and regenerates pancreatic beta cells.
Shuddh Shilajeet (<i>Asphaltum</i>)	Rasayana, rejuvenator	Improves cellular glucose uptake, enhances stamina, and supports kidney function in diabetics.

Treatment Plan

The following oral medicines were administrated for 15 days

1. **500 mg DC-24** with luke warm water twice a day before meal in morning and evening.
2. **No Sugar in meal**
3. **No Processed food, Fruits and rice in diet**
4. **Morning end event Vigorous walk or exercise twice a day for 30 minutes.**

After 15 days the following treatment schedule was followed

1. **500 mg DC-24** with luke warm water twice a day before meal in morning and evening .
2. **No Sugar in meal**
3. **No Processed food, Fruits and rice in diet**
4. **Morning end event Vigorous walk or exercise twice a day for 30 minutes.**

After 30 days the following treatment schedule was followed

1. **500 mg DC-24** with luke warm water twice a day before meal in morning and evening .
2. **No Sugar in meal**
3. **No Processed food, Fruits and rice in diet**
4. **Morning end event Vigorous walk or exercise twice a day for 30 minutes.**
5. **No rice in diet**
6. **Vigorous walk or exercise twice a day for 45 minutes**

After 45 days the following treatment schedule was followed

1. **500 mg DC-24** with luke warm water twice a day before meal in morning and evening .
2. **No Sugar in meal**
3. **No Processed food, Fruits and rice in diet**
4. **Morning end event Vigorous walk or exercise twice a day for 30 minutes.**

Along with the prescribed Ayurvedic medication, patients were encouraged to make simple lifestyle changes—such as taking a 45-minute walk outdoors each day, avoiding daytime naps (Divaswapna), and including protein-rich foods in their breakfast and other meals.

By the first follow-up on the 15th day, many patients began noticing relief. Symptoms like body aches, poor sleep, excessive thirst, increased hunger, and frequent urination had already improved by 25–30%. By the 30th day, things got even better—patients reported a 35–45% improvement in those same symptoms.

At the 45-day mark, most patients felt lighter and more energetic in their daily activities. There was also a noticeable reduction in mental stress and burning sensations in the feet, bringing total relief to around 45–55%. By the final check-in on the 60th day (after a few minor medication adjustments), the earlier symptoms had almost completely disappeared. Patients felt more energetic overall, and their nighttime urination had reduced to just 0–1 times, and 4–6 times during the day. Altogether, this marked an impressive 60–75% overall therapeutic improvement.

Biochemical and Clinical Improvements

At the beginning of the treatment, the patient's lab values were

- Serum Creatinine: 0.9 mg/dL
- Serum Cholesterol: 159 mg/dL
- Triglycerides: 191 mg/dL
- VLDL: 15 mg/dL
- HDL: 26 mg/dL
- SGOT (AST): 115 U/L
- SGPT (ALT): 200 U/L

After completing the treatment course, there were clear signs of improvement:

- Total Bilirubin: 0.8 mg/dL
- Total Proteins: 7.0 g/dL
- Alkaline Phosphatase: 218.7 IU/L
- SGOT reduced to 57 U/L
- SGPT reduced to 66 U/L

Alongside these lab results, patients also showed significant improvements in symptoms and clinical signs. Their fasting and post-meal blood sugar levels dropped notably, reflecting improved liver function and better control of blood sugar.

Bottom of Form Statistical analysis

To understand how each treatment group progressed over time, the data collected at different stages of the study were carefully examined using a statistical method called the paired Student's t-test.

RESULT

At the start of the study, all participants underwent a thorough examination at the OPD. Only those who met all the required conditions—like normal fasting blood sugar, healthy kidney (urea, creatinine) and liver function (ALT, AST), normal blood values, and clear stool tests—were included.

The study was focused on evaluating the effectiveness of the **DM capsule** in reducing common diabetes-related symptoms such as

- Body ache
- Sweet taste in the mouth
- Burning sensation in the feet
- Excessive hunger and thirst
- Increased urination
- Mental stress

After beginning the treatment, participants received **500 mg of DC-24 capsules**, 1–2 capsules twice daily, before breakfast and dinner, for **60 days**.

By the end of the study

- There was a **75% reduction in alcohol consumption** habits.
- The **sweet taste in the mouth dropped by 61.4%**.
- Other symptoms (burning soles, hunger, thirst, mental stress, and frequent urination) improved by **50–55%**.

Statistical analysis confirmed **significant improvements ($P < 0.001$)** in:

- Fasting blood sugar
- Post-meal (postprandial) blood sugar

- All major symptoms mentioned above

Additionally, the treatment also led to improvements in the **lipid profile, blood urea, and creatinine levels**—showing positive effects on overall metabolic health.

To ensure overall health safety, regular blood tests were conducted to monitor

- Blood sugar
- Kidney function (urea, creatinine)
- Liver enzymes (ALT, AST)
- Hemoglobin, RBCs, WBCs, ESR. All values remained within healthy ranges, confirming the treatment's safety and effectiveness.

Treatment efficacy

During the study, 20 participants dropped out at various stages for personal or unrelated reasons. To maintain the accuracy and reliability of the results, their data were excluded from the final analysis.

The regular intake of **500 mg DC-24 capsules** led to noticeable improvements in the participants' overall **strength, stamina, and vitality** (referred to as *Bala* in Ayurveda). According to Ayurvedic principles, this formulation works in stages—it first helps mobilize accumulated *Kapha* doshas from the affected areas, then works locally to nourish the body (*Bruhana*), build strength (*Balya*), and support reproductive and hormonal health (*Vajikarana*). These effects collectively help bring the body back into balance and promote better health.

The ingredients in the DM capsule are believed to reach deep into the body's micro-channels (*srotas*), helping to clear toxins and doshas lodged within. The Sneha (oily or unctuous component) in the formulation aids this deep action, helping relieve symptoms like body aches, sweet taste in the mouth, burning feet, intense hunger and thirst, mental stress, and frequent urination.

With regular use, the capsule gently dissolves and eliminates these imbalances without harming tissues. It also supports the natural function of **pancreatic beta cells**, strengthens muscles, and improves the body's ability to absorb and utilize glucose effectively.

The herbs used in this capsule are all documented in ancient Ayurvedic texts like the *Bhav Prakash Nighantu* and the *Ayurvedic Pharmacopeia of India*, which confirms their time-tested effectiveness in managing a variety of health issues.

DISCUSSION

In Ayurveda, Type 2 Diabetes Mellitus—referred to as *Madhumeha*—is considered a disorder involving an imbalance of the **Vata** and **Kapha** doshas. It falls under a broader category of disorders known as *Tridoshaja*, meaning all three doshas (Vata, Pitta, and Kapha) can be involved, but with Vata-Kapha predominance. Ayurveda classifies diabetes into two main types

- **Sahaja Madhumeha** (congenital, like Type 1)
- **Apathyanimittaja Madhumeha** (acquired, like Type 2)

Further, Ayurvedic texts describe different subtypes based on body constitution and causes. For example, **Sthula**, **Avaranjanya**, and **Santarpanjanya** types are closely associated with the acquired (Type 2) form. In this study, patients were diagnosed with **Apathyanimittaja Madhumeha**, meaning their condition stemmed from poor lifestyle and dietary habits.

For such cases, Ayurveda recommends herbs and medicines that can

- Improve digestion (*Deepana, Pachana*)
- Reduce excess fat and moisture (*Lekhana, Medohara*)
- Balance the Vata and Kapha doshas

The Ayurvedic text *Bhav Prakash Nighantu* lists many herbs and minerals that are known to help manage diabetes effectively. The success of the 500 mg DC-24 formulation likely comes from the **synergy of its ingredients**, which together balance all three doshas and target the root causes of the disease.

Key classical Ayurvedic ingredients used in the formulation include

- **Mineral-based medicines** like *Praval Pishti*, *Ras Sindoor*, *Swarna Bhasma*, *Loha Bhasma*, *Trivanga Bhasma*, and more.
- **Herbs** like *Guduchi* (*Tinospora cordifolia*), *Haladi* (*Turmeric*), *Shatavari*, *Vasa*, *Kamal*, and others.
- **Trivanga Bhasma** (made from lead, zinc, and tin) is especially noted for its anti-diabetic effects in both ancient texts and modern studies.

- **Guduchi**, one of the main herbs, is well-researched for its ability to lower blood sugar levels.

Additionally, a powerful blend of anti-diabetic herbs such as:

- **Ama Haldi, Giloy, Safed Musli, Methi, Neem, Karela, Jamun, Bilva Patra, Gudmar, and Shuddh Shilajeet** all contribute to the blood sugar-lowering properties of this formulation.

Together, the unique combination of classical herbs and minerals in **DC-24** works holistically to manage blood sugar levels, strengthen the body, and restore internal balance as described in Ayurvedic principles.

CONCLUSION

Madhumeha, or Type 2 Diabetes Mellitus, is a complex and multifactorial disorder often described as a “silent killer” due to its gradual onset and potential to cause severe complications if left untreated. This condition demands timely intervention to prevent long-term damage to vital organs such as the heart, kidneys, eyes, and nerves.

Based on the findings of this study, the **500 mg DC-24 Capsule** has shown remarkable effectiveness in managing Madhumeha, especially when used in combination with proper dietary practices and healthy lifestyle changes. Within just 15 days of beginning the treatment, many participants experienced a significant drop in their blood glucose levels to the pre-diabetic range. By the 30th day, most had reached near-normal levels—indicating a strong therapeutic response.

In addition to regulating blood sugar, patients also reported improvements in energy levels, reduced fatigue, and a better quality of life. These benefits may be attributed to the synergistic action of traditional Ayurvedic herbs and minerals present in the formulation, which work to balance doshas, enhance metabolism, and support pancreatic function.

Given its potential, the **DC-24 Capsule** can serve as an effective adjunct or alternative therapy for those seeking a natural approach to diabetes care. Future clinical trials on a larger scale are encouraged to validate these promising results and further explore its long-term benefits and safety profile.

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