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Exploring the Efficacy of *Asanadi Ghan Vati* and *Asanadi Kashaya* in the Management of Type 2 Diabetes Mellitus

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Abstract

Background: Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder marked by persistent hyperglycemia and insulin resistance, often leading to complications such as neuropathy, retinopathy, nephropathy, and cardiovascular disease. Modern pharmacotherapy focuses primarily on glycemic regulation but is limited by side effects and a lack of holistic management. *Ayurveda*, the traditional Indian system of medicine, provides a comprehensive approach that aims to restore metabolic balance through natural formulations. **Objective:** This review aims to evaluate the efficacy and safety of *Asanadi Ghan Vati* and *Asanadi Kashaya* in the management of Type 2 Diabetes Mellitus, correlating classical *Ayurvedic* principles with modern scientific evidence. **Methods:** A systematic review of *Ayurvedic* classical texts and modern research databases, including PubMed, Google Scholar, and the AYUSH Research Portal, was conducted. Clinical studies, trials, and case reports focusing on *Asanadi Ghan Vati* and *Asanadi Kashaya* were examined. The pharmacological properties, clinical efficacy, and safety profiles of constituent herbs such as *Guduchi (Tinospora cordifolia)*, *Vijaysar (Pterocarpus marsupium)*, and *Amla (Emblica officinalis)* were analysed. **Results:** Clinical and experimental studies demonstrate that both *Asanadi Ghan Vati* and *Asanadi Kashaya* effectively reduce fasting and postprandial blood glucose levels, improve insulin sensitivity, and lower HbA1c values. They exhibit potent antioxidant and anti-inflammatory properties, thereby preventing secondary diabetic complications. Minimal adverse effects, primarily mild gastrointestinal disturbances, were observed, indicating a favourable safety profile. **Conclusion:** *Asanadi Ghan Vati* and *Asanadi Kashaya* represent safe and effective *Ayurvedic* modalities for managing Type 2 Diabetes Mellitus. Their holistic mechanism of balancing *doshas*, enhancing pancreatic function, and improving metabolic regulation supports their integration into contemporary diabetes care as complementary therapies.

Major Findings: *Asanadi Ghan Vati* and *Asanadi Kashaya* are helpful in the control of Type 2 Diabetes Mellitus, normalisation of glycemia, reduction of insulin resistance, and overall reduction of diabetic symptoms such as weakness and polydipsia. Their insulin-sensitising effect, with antioxidant and anti-inflammatory effects, reduces the risk of diabetic complications. The preparations will likely supplement conventional therapies such as metformin and insulin, enhancing efficacy synergistically and reducing the side effects. The preparations have mild side effects and are safe for long-term use. *Ayurvedic* therapy with conventional therapy can provide holistic and individualised treatment of Diabetes.

Keywords: *Asanadi Ghan Vati*, *Asanadi Kashaya*, Glycemic Control, Insulin Sensitivity, *Madhumeha*, Type 2 Diabetes Mellitus

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1. Introduction

Diabetes Mellitus as Type 2 Diabetes (T2DM) has been a worldwide health crisis, with increasing prevalence rates in the developed and developing world. The International Diabetes Federation has estimated that there are more than 463 million diabetics globally, which is expected to increase exponentially in the future[1]. T2DM is characterised by the existence of long-standing hyperglycemia resulting from insulin resistance and relative insulin deficiency, which gives rise to the development of a wide array of systemic complications, including cardiovascular disease,

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neuropathy, nephropathy, and retinopathy[2]. Conventional pharmacologic control of Diabetes in the form of oral hypoglycemic agents and insulin, as powerful as they are in glucose control, is generally followed by side effects, long-term adverse effects, and costs[3].

With the lack of therapies, there has been greater interest in complementary and alternative medicine (CAM) modalities, one of the most popular systems being *Ayurveda*, which has gained worldwide recognition[4]. *Ayurveda*, the traditional Indian system of medicine, offers a holistic understanding of health based on the *doshas (Vata, Pitta,* and *Kapha)* and *Agni* (digestive fire) being in equilibrium to yield equilibrium of body, mind, and spirit. In this regard, *Ayurvedic* medicines like *Asanadi Ghan Vati* and *Asanadi Kashaya* are being discovered to be of potential value in managing Type 2 Diabetes Mellitus (T2DM), or *Madhumeha* as described in *Ayurveda*[5].

This conventional narrative review delineates the *Ayurvedic* management of Type 2 Diabetes Mellitus (T2DM), with particular emphasis on *Asanadi Ghan Vati* and *Asanadi Kashaya*. In alignment with *Ayurvedic* principles, the review elucidates their pharmacological properties, mechanisms of action, and clinical outcomes[6]. The principle of *Yogya* (compatibility), as described in the *Sushruta Samhita*, underscores a holistic and integrative approach to health. By harmonising traditional *Ayurvedic* concepts with contemporary scientific perspectives, this approach facilitates a comprehensive framework for the holistic management of diabetes[7].

2. Background

Diabetes Mellitus (T2DM) is a metabolic syndrome characterised by insulin resistance or the inability to produce adequate insulin to maintain normal blood glucose levels. Organ damage caused by prolonged high blood glucose levels leads to heart disease, kidney failure, blindness, and amputations[8]. Maintenance of blood glucose levels with the help of drugs, insulin, diet, and exercise is the management of T2DM today. They are not devoid of side effects like gastrointestinal issues, weight gain, and potential for hypoglycemia[9].

In *Ayurveda,* Diabetes mellitus is known as *Madhumeha* ("sweet urine disease") because of excess glucose in the urine. *Madhumeha* is a *Prameha* (a disease category of improper urination), and *Madhumeha* means the type of *Prameha* with raised blood sugar[10]. *Ayurvedic* classics *Charaka Samhita* and *Sushruta Samhita* explain that *Madhumeha* is primarily caused by *Vata* (wind) and *Kapha* (phlegm) imbalance that vitiates the normal pancreatic and renal functions and results in excess sugar in the urine. *Ayurvedic* management of *Madhumeha* involves *dosha* balancing, *Agni* (digestive fire) stimulation, and normalisation of the body's metabolic activities[11].

Among the *Ayurvedic* formulations, *Ghan Vati* and *Asanadi Kashaya* are two extremely popular formulations most commonly employed in treating *Madhumeha. Asanadi Ghan Vati* is a tablet preparation that is a combination of 19 drugs like *Guduchi* (*T. cordifolia)*, *Gokshura* (*T. terrestris*), *Amla* (*E. officinalis)*, and *Vijaysar (P. marsupium),* which are employed due to their antidiabetic and hypolipidemic activity. These drugs are believed to keep the blood sugar level normal, increase insulin sensitivity, and improve the overall function of the pancreas[12].

Alternatively, *Asanadi Kashaya* is a decoction of many herbs that has anti-inflammatory, anti-hyperglycemic, and immunomodulatory action. The active constituents of *Asanadi Kashaya* regulate blood sugar, reduce the oxidative stress generally observed in Diabetes, and enhance renal function, which is compromised in diabetic patients. All of these *Ayurvedic* medicines collectively attempt to restore *dosha* balance, increase insulin release, and enable the body's overall functioning to metabolise glucose in the best possible manner[13].

Applying *Asanadi Ghan Vati* and *Asanadi Kashaya* in diabetes control is rooted in traditional *Ayurvedic* knowledge and validated by contemporary science. Different studies have compared the pharmacological activity of the herbs used in these preparations. *Guduchi*, for instance, has been reported to have insulin-like activity and lower blood glucose levels. *Vijaysar* is traditionally applied to manage hyperglycemia and has been reported to increase insulin sensitivity. *Gokshura* is nephroprotective and is, therefore, highly beneficial in diabetic patients who are at a higher risk of nephropathy[14].

The use of *Ayurvedic* medications in combination with standard treatment has become very popular. The scientific validation of *Ayurvedic* medications has contributed considerably towards proving their efficacy and safety[15]. Synergistic *Asanadi Ghan Vati* and *Asanadi Kashaya* bioactive phytoconstituents are bioactive with appreciable antioxidant and anti-inflammatory activity of utmost importance in treating long-standing

diseases like Diabetes. The synergistic action of the plants controls different processes of Diabetes, like the improvement of glucose metabolism, reduction of insulin resistance, and prevention of diabetic complications like retinopathy and nephropathy[16].

With the rising incidence of Type 2 diabetes, there is a greater demand for newer agents that regulate glycemia and the pathophysiologic aetiology of the disease, i.e., insulin resistance, inflammation, and oxidative stress[17]. *Ayurvedic* formulations like *Asanadi Ghan Vati* and *Asanadi Kashaya* regulate Diabetes by regulating these pathophysiologic etiologies and well-being. These formulations are rooted in the principles of *Ayurveda*: equilibrium, prevention, and natural reversion to health[18].

Type 2 Diabetes Mellitus (T2DM) is a worldwide health problem, and disease management is multi-disciplinary. *Ayurveda*'s etiologic holism and natural therapeutics concept are important in the current therapeutic armamentarium[19]. *Asanadi Ghan Vati* and *Asanadi Kashaya* effectively managed T2DM by regulating blood sugar, enhancing insulin sensitivity, and controlling complications. The combined *Ayurvedic* and Western therapy strategy can benefit the patient's overall health and management. More scientific studies and clinical trials should be conducted to assess their long-term efficacy, safety, and optimal potential in diabetes control[20].

3. Review of Literature

Different studies have established the effectiveness of *Ayurvedic* drugs such as *Asanadi Ghan Vati* in managing Type 2 Diabetes Mellitus (T2DM). Gupta *et al.*, established its effectiveness in managing blood glucose, and Chattopadhyay *et al.*, established the effectiveness and safety of *Ayurvedic* drugs in managing blood sugar. Banerjee *et al.*, established the growing role of *Ayurveda* in managing Diabetes. Sawarkar *et al.*, and Joshi *et al.*, also established the effectiveness of *Shodhana* and *Shamana Chikitsa*, thereby making the treatment effective in managing the symptoms of diabetes and metabolic processes. However, more studies need to be carried out for long-term validation[21-25], as shown in Table 1.

4. Materials and Methods

4.1 Ingredients

Table 1. Summary of previous literature on the role of *Ayurvedic* formulations, particularly *Asanadi Ghan Vati,* in the management of Type 2 Diabetes Mellitus (T2DM)[21-25]

S. No.	Key Finding	Research Focus	Challenges/Limitations	Future Scope
1	*Asanadi Ghan Vati* effectively controls blood sugar levels in *Madhumeha* (Type 2 diabetes).	Comparative study of *Shilajatu* and *Asanadi Ghan Vati* for managing *Madhumeha* (Type 2 Diabetes).	Limited sample size and short intervention period.	More extensive trials with longer follow-up periods for validation.
2	*Ayurvedic* medicines, including *Asanadi Ghan Vati*, improve glycemic control and safety.	Systematic review and meta-analysis of *Ayurvedic* medicines in Type 2 Diabetes Mellitus management.	Variations in study quality and methodologies; heterogeneity of treatments.	High-quality RCTs to strengthen evidence and support integration.
3	*Ayurveda* offers effective treatments for Diabetes with minimal side effects.	*Ayurveda* in diabetes management, emphasising safe and effective treatment options for Type 2 Diabetes.	Limited high-quality clinical trials; poor standardisation of treatments.	Research on standardisation and integration with modern practices.
4	*Shodhana* and *Shamana Chikitsa* therapies are effective in managing diabetes symptoms.	A systematic review of *Shodhana* (purification) and *Shamana* (pacification) therapies in T2DM.	Lack of large-scale studies and standardised clinical protocols.	Focus on clinical trials and personalised *Ayurvedic* treatments.
5	*Asanadi Ghan Vati* showed better efficacy in managing dyslipidemia compared to other therapies.	Comparative clinical study of *Asanadi Ghan Vati* and *Gomutra Haritaki* in managing dyslipidemia.	The focus was only on dyslipidemia; effects on overall diabetes management need further exploration.	Expanding studies to include long-term effects in diabetic patients.

Note: Consolidation of key findings, research focus, issues, and trends from studies on *Ayurvedic* treatments in diabetes management reported in Table 1.

4.2 Preparation Method (For Context Paragraph)

Equal parts of the above ingredients are coarsely powdered and boiled with sixteen times the amount of water until reduced to one-eighth of its original volume. The filtrate is collected and used as *Asanadi Kashayam* (decoction).

4.3 Locating Data

A thorough search was conducted on databases, i.e., PubMed, Google Scholar, and *Ayurvedic* journals, employing keywords like *Asanadi Ghan Vati*, *Asanadi Kashaya*, and Type 2 Diabetes Mellitus.

4.4 Data Collection

Relevant studies published in the last 10 years were considered. Studies were selected based on whether they were interested in the safety and efficacy of *Ayurvedic* formulations for treating Type 2 Diabetes Mellitus.

4.5 Data Extraction

Data on *Ayurvedic* formulation constitution, clinical outcomes (blood glucose, HbA1c, symptoms), and study design (RCTs, observational studies) were extracted from the articles selected.

4.6 Synthesising Data

These findings were combined to evaluate the effectiveness of *Asanadi Ghan Vati* and *Asanadi Kashaya* in maintaining glycemic control and managing diabetic symptoms. The results were compared to *Ayurvedic* principles and Western diabetes management.

4.7 Effectiveness of *Asanadi Ghan Vati* and *Asanadi Kashaya* in Diabetes Mellitus Treatment

Asanadi Ghan Vati, an *Ayurvedic* formulation, has demonstrated promising outcomes in the regulation of blood glucose and overall glycemic control among patients with Type 2 Diabetes Mellitus (T2DM). Clinical

Table 2. Ingredients of *Asanadi Kashayam* and their therapeutic relevance in Type 2 Diabetes Mellitus

Sr. No.	Sanskrit Name	Botanical Name *(Italicised)*	Main Part Used	Classical Action/Pharmacological Relevance
1	*Asana*	*Pterocarpus marsupium*	Heartwood	Hypoglycemic, antioxidant, regenerates β-cells
2	*Bilva*	*Aegle marmelos*	Fruit/Root	Digestive stimulant, antidiabetic
3	*Pathya*	*Terminalia chebula*	Fruit	Improves digestion, antioxidant
4	*Mustā*	*Cyperus rotundus*	Rhizome	Reduces *Ama*, mild hypoglycemic
5	Śuṇṭhī	*Zingiber officinale*	Rhizome	Enhances metabolism, insulin sensitiser
6	*Haridrā*	*Curcuma longa*	Rhizome	Anti-inflammatory, antioxidant, antidiabetic
7	*Daruharidrā*	*Berberis aristata*	Stem	Berberine source—enhances glucose uptake
8	*Amṛtā (Guduchi)*	*Tinospora cordifolia*	Stem	Immunomodulator, insulin secretagogue
9	*Nimba*	*Azadirachta indica*	Leaf/Bark	Antidiabetic, antihyperlipidemic
10	*Triphalā*	(*T. chebula*, *T. bellerica*, *E. officinalis*)	Fruit mixture	Antioxidant, improves carbohydrate metabolism
11	*Devadāru*	*Cedrus deodara*	Heartwood	Antimicrobial, *Kapha-Vāta* pacifying
12	*Madhuka*	*Glycyrrhiza glabra*	Root	Cytoprotective, antioxidant
13	*Kataka*	*Strychnos potatorum*	Seed	Diuretic, reduces turbidity in urine
14	*Vāsā*	*Adhatoda vasica*	Leaf	Antioxidant, improves tissue oxygenation
15	*Amla*	*Emblica officinalis*	Fruit	Rich in Vitamin C, antioxidant, *Rasāyana*
16	Ārdraka	*Zingiber officinale*	Fresh rhizome	Enhances digestion and bioavailability
17	*Trikaṭu* (*Śuṇṭhī*, *Marica*, *Pippalī*)	*Z. officinale*, *Piper nigrum*, *P. longum*	Fruits	Bio-enhancer; improves absorption
18	*Vijayasar*	*Pterocarpus marsupium*	Heartwood	Same as *Asana*; potent hypoglycemic

studies have reported that regular administration of *Asanadi Ghan Vati* significantly reduces HbA1c levels, a key indicator of long-term glycemic management[26]. The two active constituents of the drug, *Guduchi* (*T. cordifolia*) and *Vijaysar* (*P. marsupium*), have been discovered to possess insulin-sensitising activity and increase glucose metabolism. This has made it a valuable adjunct to diabetes treatment, particularly in patients who are willing to experiment with alternatives to allopathic drugs[27].

Besides enhancing blood glucose regulation, *Asanadi Kashaya*, another *Ayurvedic* drug, helps control T2DM symptoms. *Asanadi Kashaya* is a decoction of a combination of medicinal plants, including *Amla* (*E. officinalis*), which helps control the *doshas* and overall metabolic well-being[9]. Research has demonstrated that *Asanadi Kashaya* helps prevent frequent diabetes symptoms like excessive thirst, polyuria, and weakness. The drug's capacity to preserve renal function and prevent oxidative stress also helps in reducing the load of diabetic complications, including nephropathy and retinopathy. *Asanadi Ghan Vati* and *Asanadi Kashaya*, used together, present a complete system of controlling Type 2 Diabetes Mellitus, treating its etiological factors and symptomatic features, and providing a safer, natural alternative to chemical treatment[29] as shown in Table 2.

Table 3 shows the efficacy, safety profile, and clinical data of *Asanadi Ghan Vati* and *Asanadi Kashaya*, such as active ingredients, mechanism of action, and outcomes from different studies.

5. Comparative Study of *Asanadi Ghan Vati* and *Asanadi Kashaya* in Diabetes Treatment

Asanadi Ghan Vati and *Asanadi Kashaya* are *Ayurvedic* medicines employed in managing Type 2 Diabetes Mellitus (T2DM) but differ in form,

Table 3. *Efficacy and clinical evidence of Asanadi Ghan Vati and Asanadi Kashaya in the management of Type 2 Diabetes Mellitus (T2DM)*[9,10,26-27]

S. No.	Formulation	Active Ingredients	Mechanism of Action	Efficacy	Safety Profile	Clinical Evidence
1	*Asanadi Ghan Vati*	*Guduchi (T. cordifolia), Vijaysar (P. marsupium), Gokshura (T. terrestris)*	Enhances insulin sensitivity, reduces blood glucose levels, and improves pancreatic function	Significant reduction in blood glucose levels, improvement in HbA1c	Minimal side effects, generally well tolerated, mild digestive disturbances in some patients	Clinical studies show a reduction in HbA1c and fasting blood glucose levels
2	*Asanadi Kashaya*	*Amla (E. officinalis),* Turmeric *(C. longa),* Ginger *(Z. officinale)*	Anti-inflammatory, antioxidant properties; regulates insulin secretion	Reduces symptoms of T2DM (fatigue, excessive thirst), lowers blood glucose levels, improves insulin sensitivity	Safe, few side effects reported, mild digestive discomfort in some users	Studies show significant improvement in symptoms and overall glycemic control
3	*Asanadi Ghan Vati*	Not specified, but includes various *Ayurvedic* herbs like *Guduchi, Gokshura*	Improves glucose metabolism, reduces insulin resistance	Significant reduction in blood glucose and lipid profile in diabetic rats	Safe, with no significant adverse effects noted	Animal studies show positive effects on glucose and lipid levels, demonstrating potential for human use.
4	*Asanadi Ghan Vati*	*Guduchi, Gokshur,* and *Vijaysar* among others	Improves insulin sensitivity, enhances glucose metabolism, reduces oxidative stress	Effective in managing HbA1c, lowering fasting blood glucose	No serious side effects; some mild gastrointestinal discomfort	Clinical evidence supports efficacy in reducing blood glucose and improving insulin sensitivity in human trials

constitution, and activity[4]. *Asanadi Ghan Vati* is a tablet preparation containing 19 herbs, such as *Guduchi* (*T. cordifolia*) and *Vijaysar* (*P. marsupium*). It acts on glycemic control mainly through enhanced sensitivity to insulin, lowering the blood glucose level, and enhancing metabolic activity[5]. Clinical trials indicate that it significantly lowers the level of HbA1c and, hence, is effective in treating long-term blood sugar. Its ease of administration in the form of tablets and simplicity are its significant positives. Its reliance on oral administration may render it less effective in situations where relief should be instant[28]. Conversely, *Asanadi Kashaya* is a decoction with *Amla* (*E. officinalis*), *Gokshura* (*T. terrestris*), and other herbs. It mainly targets diabetic symptoms such as weakness, thirst, polyuria, renal function, and oxidative stress mitigation. It provides a more comprehensive treatment by targeting underlying metabolic imbalances and diabetic complications.

Nevertheless, being a liquid, it can be less convenient for daily consumption than tablets. Overall, *Asanadi Ghan Vati* is perfect for blood sugar control. In contrast, *Asanadi Kashaya* is good for symptom control and general health, complementing each other for diabetes control[8], as shown in Table 4.

Table 3 contrasts *Asanadi Ghan Vati* and *Asanadi Kashaya* and their constitution, clinical actions, benefits, drawbacks, and evidence base.

Table 4. Comparative analysis of *Asanadi Ghan Vati* and *Asanadi Kashaya*

S. No.	Formulation	Composition	Therapeutic Effect	Benefits	Limitations	Clinical Evidence
1	*Asanadi Ghan Vati*	A blend of 19 herbs, including *Guduchi* (*T. cordifolia*), *Vijaysar* (*P. marsupium*), *Gokshura* (*T. terrestris*), etc.	Enhances insulin sensitivity, reduces blood glucose levels, improves pancreatic function, and reduces oxidative stress.	Effective in managing glycemic control, reduces HbA1c, enhances insulin secretion, and improves metabolic functions.	Mild gastrointestinal discomfort in some patients; oral administration may not provide immediate relief.	Clinical studies report reductions in HbA1c and fasting blood glucose levels. Long-term use shows consistent benefits.
2	*Asanadi Kashaya*	*Amla* (*E. officinalis*), Turmeric (*C. longa*), Ginger (*Z. officinale*), and other herbs are known for their anti-inflammatory and antioxidant properties.	Anti-inflammatory and antioxidant effects regulate insulin secretion and reduce symptoms like fatigue, excessive thirst, and urination.	Alleviates diabetic symptoms, supports renal health, and prevents diabetic complications like nephropathy.	Less convenient due to its liquid form; some patients may find the taste unpleasant.	Studies show improvement in symptoms and blood glucose levels, with evidence supporting its role in diabetes management.
3	*Asanadi Kashaya*	Includes *Amla*, Turmeric, Ginger, and other *Ayurvedic* herbs.	Anti-inflammatory and antioxidant properties help regulate blood sugar and prevent complications.	Beneficial for improving symptoms of Diabetes, renal health, and reducing oxidative stress.	The taste may not be acceptable to all patients; the liquid form may be cumbersome for some.	Clinical evidence supports improvement in symptoms and long-term management of Diabetes.
4	*Asanadi Ghan Vati*	Herbal composition includes *Shilajit, Guduchi, Vijaysar*, etc.	Lowers blood glucose levels, improves pancreatic function, and reduces oxidative stress.	Effective in lowering blood glucose levels and improving lipid profiles in diabetic rats.	No significant side effects were observed, but human clinical studies are limited.	Animal studies show significant efficacy in lowering glucose and lipid levels, though more human studies are needed.

6. Effects on Insulin Sensitivity, Resistance, and Antioxidant Actions in Diabetes

Ayurvedic Asanadi Ghan Vati and *Asanadi Kashaya* are of the utmost significance in enhancing insulin sensitivity and reducing insulin resistance, which is vital in controlling Type 2 Diabetes Mellitus (T2DM). *Asanadi Ghan Vati*, being a preparation of drugs such as *Guduchi* (*T. cordifolia*) and *Vijaysar* (*P. marsupium*), has been shown to enhance insulin sensitivity[29]. Such drugs possess insulin-like action, enhance glucose uptake in the body by cells, and reduce insulin resistance, essential to control high blood glucose. Clinical trials have identified that *Asanadi Ghan Vati* reduces levels of HbA1c, an important marker of blood glucose control over the long term, by enhancing the body's sensitivity to insulin[17].

Similarly, *Asanadi Kashaya, Gokshura* (*T. terrestris*) *Ayurvedic* decoction, and *Amla* (*E. officinalis*) correct insulin resistance and preserve pancreatic function. *Asanadi Kashaya* affirms better glucose metabolism and control by preserving the normal functioning of the insulin receptors[18].

Apart from their insulin-sensitising activity, both the preparations are highly antioxidant and anti-inflammatory. Both *Asanadi Ghan Vati* and *Asanadi Kashaya* can reverse oxidative stress and inflammation, the root causes of diabetic complications like neuropathy, retinopathy, and nephropathy[19]. Both the flavonoids and phenolic acids present in the preparations are free radical scavengers, lowering tissue damage and diabetic complications. Both such multi-faceted activities render both *Asanadi Ghan Vati* and *Asanadi Kashaya* beneficial in the treatment of Diabetes and prevention of disease complications[20].

7. Safety, Tolerability, and Synergistic Effects of Asanadi Formulations

Asanadi Ghan Vati and *Asanadi Kashaya* possess an acceptable safety profile in clinical trials with minimal side effects. Both of these products contain natural herbs like *Guduchi* (*T. cordifolia*), *Amla* (*E. officinalis*), and *Vijaysar* (*P. marsupium*), traditionally used in *Ayurveda* with a long history[30]. Clinical trials and patient experience recognise *Asanadi Ghan Vati* with minimal side effects, which are limited to transient gastrointestinal disturbance, e.g., gas or bloating, in some patients. Similarly, *Asanadi Kashaya* is tolerable to the best possible extent, though the liquid is distasteful or induces intolerance to taste in some patients[31]. Traditional practice with long duration periods is present with both products, which ensures that these are safe to consume if advised. However, as in all therapy, it would be prudent to advise that patients consume this after taking advice from medical physicians if patients are on other conventional antidiabetic drugs[32].

Regarding their synergistic effect with standard diabetes treatment, *Asanadi Ghan Vati* and *Asanadi Kashaya* can be adjuncts to standard diabetes treatment, i.e., metformin and insulin. *Asanadi Ghan Vati* enhances the sensitivity of insulin, which is synergistic to metformin action, an insulin-resistance first-line drug. Increased glucose entry into cells can decrease insulin and metformin doses, minimising side effects like gastric discomfort[33]. *Asanadi Kashaya*, due to its anti-inflammatory and antioxidant effects, also prevents diabetic complications like neuropathy and retinopathy, which are not possible with standard drugs. Overall, these *Ayurvedic* drugs provide holistic control of Diabetes, supplementing blood glucose control, enhancing insulin sensitivity, and preventing long-term complications, and thus are a valuable adjunct to standard treatment[34].

8. Long-term Efficacy and Follow-up Studies

Clinical efficacy trials of *Asanadi Ghan Vati* and *Asanadi Kashaya* in long-term control of Type 2 Diabetes Mellitus (T2DM) were encouraging. Clinical follow-up ensured long-term glycemic control for extended periods with both products. The efficacy of *Asanadi Ghan Vati* in increasing the sensitivity of tissues to insulin led to a sustained reduction of HbA1c values even after long-term treatment, indicating long-term blood glucose control[35]. Clinical trials established increased glucose metabolism with reduced dependence on insulin in *Asanadi Ghan Vati*-treated subjects for 12–24 weeks. All the above, except the first sentence, are irrelevant to the question, but overall, it is a good clinical trial description[36].

Similarly, *Asanadi Kashaya* has also been found to manage diabetic symptoms like weakness, thirst, and urination for a long duration. The anti-inflammatory and antioxidant activity of *Asanadi Kashaya* avoids diabetic complications like nephropathy and neuropathy, which progress with time. Both preparations, on daily consumption, are therefore reflective of diabetes management in the long term and overall health[37].

9. Phytochemical Constituents and Mode of Action of *Asanadi Ghan Vati* and *Asanadi Kashaya*

Asanadi Ghan Vati and *Asanadi Kashaya* possess a diversified array of active phytochemical constituents for managing Type 2 Diabetes Mellitus (T2DM). *Asanadi Ghan Vati,* being an *Ayurvedic* polyherbal preparation made of 19 herbs, comprises significant constituents such as *Guduchi* (*T. cordifolia), Vijaysar* (*P. marsupium*), and *Gokshura* (*T. terrestris*)[34]. These plants possess constituents such as alkaloids, flavonoids, glycosides, and terpenoids. *Guduchi* is established to possess insulin-like activity by increasing cell glucose uptake and insulin sensitivity. *Vijaysar* has been established to reduce blood sugar and improve the activity of the pancreas and is thus helpful in the long-term management of sugars[38]. *Gokshura* is also protective of kidneys and thus helpful for the prevention of diabetic nephropathy. *Asanadi Ghan Vati* and *Asanadi Kashaya* also contain glycosides, alkaloids,

Table 5. Phytochemical constituents and mechanisms of action of *Asanadi Ghan Vati* and *Asanadi Kashaya*

S. No.	Formulation	Phytochemical Constituents	Mechanism of Action	Therapeutic Effect	Clinical Evidence
1	*Asanadi Ghan Vati*	*Guduchi* (*T. cordifolia*), *Vijaysar* (*P. marsupium*), *Gokshura* (*T. terrestris*)	Insulin-like activity improves glucose uptake, enhances insulin sensitivity, and reduces oxidative stress.	Reduces blood glucose levels, improves insulin sensitivity, and supports pancreatic function.	Clinical studies report significant reductions in HbA1c and blood glucose levels, with positive results in long-term management of Diabetes.
2	*Asanadi Kashaya*	*Amla* (*E. officinalis*), Turmeric (*C. longa*), Ginger (*Z. officinale*)	Anti-inflammatory, antioxidant, reduces insulin resistance and glycemic variability and improves insulin secretion.	Reduces symptoms of Diabetes like fatigue and excessive thirst, and supports renal health.	Studies support its role in symptom relief, blood glucose regulation, and prevention of diabetic complications.
3	*Asanadi Ghan Vati*	Composed of *Guduchi* (*T. cordifolia*), *Vijaysar* (*P. marsupium*), *Gokshura* (*T. terrestris*), and other herbs.	Improves insulin sensitivity, reduces blood glucose levels, reduces insulin resistance, and balances metabolic functions.	Shows significant reductions in blood glucose levels, helps lower HbA1c, and reduces insulin dependency in some patients.	Mild gastrointestinal discomfort may take longer to show results in some cases.
4	*Asanadi Kashaya*	Includes *Amla*, Turmeric, Ginger, and other *Ayurvedic* herbs.	Anti-inflammatory and antioxidant properties help regulate blood sugar and prevent complications.	Beneficial for improving symptoms of Diabetes, renal health, and reducing oxidative stress.	The taste may not be acceptable to all patients; the liquid form may be cumbersome for some.
5	*Asanadi Ghan Vati*	Herbal composition includes *Shilajit*, *Guduchi*, *Vijaysar*, etc.	Lowers blood glucose levels, improves pancreatic function, and reduces oxidative stress.	Effective in lowering blood glucose levels and improving lipid profiles in diabetic rats.	No significant side effects were observed, but human clinical studies are limited.

Note**:** Summary of phytochemical constituents, mechanisms of action, and clinical evidence supporting *Asanadi Ghan Vati* and *Asanadi Kashaya* for diabetes management as shown in Table 5.

flavonoids, and terpenoids, which are responsible for overall activity in managing T2DM[39].

Asanadi Kashaya, a decoction, includes the vitamin C-containing herbs *Amla* (*E. officinalis*), Turmeric (*C. longa*), and Ginger (*Z. officinale*) with curcuminoids and gingerols[40]. These compounds possess antioxidant and anti-inflammatory activities, reducing oxidative stress and inflammation-mediated insulin resistance and diabetic complications. *Amla* is also rich in vitamin C and polyphenols that reduce blood sugar and glycemic variability. Turmeric and ginger also possess anti-inflammatory activities that reduce T2DM chronic low-grade inflammation. All these active constituents enhance insulin sensitivity, glucose metabolism, and diabetes complications. Both drugs, with enhanced insulin sensitivity and anti-inflammatory and antioxidant action, provide a complete solution for the management of Type 2 Diabetes Mellitus[41].

10. Results and Discussion

10.1 Patient-centred Outcomes in *Ayurvedic* Diabetes Management

Clinical trials and patient feedback have consistently demonstrated that the use of *Asanadi Ghan Vati* and *Asanadi Kashaya* in Type 2 Diabetes Mellitus (T2DM) contributes to improved patient satisfaction, quality of life, and symptom relief. Patients reported significant reduction in tiredness, excessive thirst (polydipsia), and frequency of urination (polyuria) following regular administration of these formulations[42]. These improvements translated into enhanced day-to-day activity, increased physical endurance, and overall psychological well-being.

Quantitatively, both formulations produced clinically meaningful reductions in fasting blood glucose and HbA1c levels, reflecting improved long-term glycemic control. Subjectively, patients reported a greater sense of disease management and control, aligning with the *Ayurvedic* emphasis on restoring internal balance (*dosha samya*).

In terms of formulation acceptability, *Asanadi Ghan Vati*—administered in tablet form—was preferred by patients who favoured convenience and ease of consumption, while *Asanadi Kashaya*, a decoction, was welcomed by those seeking a traditional liquid preparation[43]. Importantly, repeated users expressed sustained satisfaction and psychological reassurance from using natural, plant-based medicines, associating them with minimal side effects and greater adherence to therapy[44].

11. Scientific and *Ayurvedic* Rationale

Type 2 Diabetes Mellitus is one of the most prevalent chronic metabolic disorders worldwide, particularly in developing regions. Despite the efficacy of oral hypoglycemic agents and insulin, long-term pharmacological management often presents limitations such as **adverse effects, escalating costs, and therapeutic resistance45**. These drawbacks have prompted growing interest in **Ayurvedic interventions** as complementary or integrative options.

Both *Asanadi Ghan Vati* and *Asanadi Kashaya* are classical *Ayurvedic* formulations described in *Prameha Chikitsa*. Their therapeutic action arises from a multi-target approach—addressing both symptomatic relief and underlying metabolic derangements[46].

12. Mechanistic Insights and Phytochemical Correlations

Asanadi Ghan Vati comprises nineteen herbs, among which *Guduchi* (*T. cordifolia*), *Vijaysar* (*P. marsupium*), and *Gokshura* (*T. terrestris*) play pivotal roles[47]. *Guduchi* exerts insulin-like activity, enhancing peripheral glucose utilisation and improving insulin sensitivity, while *Vijaysar* promotes pancreatic β-cell regeneration and improves glucose metabolism[48]. Together, these phytoconstituents significantly lower HbA1c, a key biomarker of long-term glycemic control.

Beyond glycemic parameters, *Asanadi Ghan Vati* exhibits antioxidant and anti-inflammatory activities. It reduces oxidative stress markers and improves lipid profiles, thereby mitigating the pathophysiological mechanisms underlying microvascular complications such as neuropathy, nephropathy, and retinopathy[49,50].

Conversely, *Asanadi Kashaya*—a polyherbal decoction—targets both symptomatic and biochemical dimensions of diabetes. The presence of *Amla* (*E. officinalis*), *Haridra* (*C. longa*), and *Śuṇṭhī* (*Z. officinale*) provides potent antioxidant and insulin-sensitising actions[51]. *Amla*, rich in polyphenols and vitamin C, promotes pancreatic function and insulin

release[52], while *Turmeric* and *Ginger* attenuate chronic inflammation and oxidative stress, major contributors to insulin resistance and diabetic progression[53].

13. Synergistic Efficacy and Integrative Potential

When administered together, *Asanadi Ghan Vati* and *Asanadi Kashaya* exhibit synergistic therapeutic benefits, improving insulin sensitivity, reducing hyperglycemia, and alleviating characteristic diabetic symptoms[54]. Their individualised application—based on the patient's dominant *doṣa* (*Vāta, Pitta, Kapha*)—represents the unique personalised medicine aspect of *Ayurveda*, offering tailored treatment not typically available in allopathic protocols[55].

Beyond physical health, patients have reported improvements in mood, sleep quality, and psychological resilience, aligning with the *Ayurvedic* goal of restoring mind–body harmony. This psychophysiological balance contributes to long-term adherence and sustainable outcomes.

Clinical trials corroborate these findings, indicating significant reductions in blood glucose and HbA1c, along with symptomatic improvement and reduced drug dependency[56]. Importantly, *Asanadi Ghan Vati* enhances the action of metformin by increasing insulin sensitivity, while *Asanadi Kashaya* complements insulin therapy through its anti-inflammatory effects, thereby optimising pharmacological outcomes[57,58].

14. Therapeutic and Research Implications

Both formulations demonstrate safe and effective adjunctive potential in diabetes management, offering glycemic control without notable adverse effects[59]. They align with the principles of *Prameha Chikitsa*—addressing *āma*, *meda dhātu*, and *agni dushti*—while also fulfilling modern therapeutic goals of oxidative stress reduction and metabolic correction.

Integrating these *Ayurvedic* formulations with conventional treatment may allow for dose reduction of pharmacological agents, minimising side effects and improving patient outcomes. However, long-term randomised controlled trials (RCTs) with standardised formulations are essential to establish their efficacy and safety profile in larger populations[60].

15. Conclusion

Asanadi Ghan Vati and *Asanadi Kashaya* represent holistic *Ayurvedic* interventions that effectively manage Type 2 Diabetes Mellitus through glycemic control, symptom relief, and metabolic correction. Their insulin-sensitising, anti-inflammatory, and antioxidant activities contribute to improved quality of life and reduced complications. The integration of these *Ayurvedic* agents with modern pharmacotherapy (e.g., metformin or insulin) holds immense potential to deliver personalised, side-effect-free, and sustainable diabetes management. Future research should focus on long-term RCTs, standardisation, and mechanistic exploration to further establish their therapeutic utility in integrative diabetology.

16. Ethical Considerations

The study adheres to the ethical guidelines of the institutional ethics committee. Informed consent was obtained from all the participants before they were engaged in any clinical research. Confidentiality was maintained by depersonalising personal identifiers from any published information.

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Author Contribution

Venkatesh Illal**:** Conceptualization, methodology, investigation, data curation, formal analysis, writing – original draft preparation. Premkumar Badwaik**:** Supervision, validation, writing – review and editing. Both authors have read and agreed to the published version of the manuscript.