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"GESTATIONAL DIABETES MELLITUS: AN AYURVEDIC PERSPECTIVE AND THE POTENTIAL OF DIETARY AND HERBAL INTERVENTIONS — A CONCEPTUAL AND INTEGRATIVE REVIEW"

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ABSTRACT:

Background: Gestational diabetes mellitus (GDM) is one of the commonest medical complications of pregnancy and carries short- and long-term risks for mother and child. Standard care rests on screening, medical nutrition therapy, physical activity, glucose monitoring and, when needed, insulin or metformin. Interest in Ayurvedic approaches is growing in India, but GDM is not described as a discrete entity in the classical texts and Ayurvedic clinical data are very limited. **Objective:** To present a conceptual Ayurvedic understanding of GDM, to examine which dietary and lifestyle principles of Garbhini paricharya are compatible with current evidence, and to assess critically the evidence and safety concerns for herbal interventions in pregnancy. **Methods:** Classical texts (Charaka Samhita, Sushruta Samhita, Kashyapa Samhita) were reviewed for antenatal regimen and Prameha. PubMed was searched for guidelines, reviews, meta-analyses, trials and experimental studies on GDM, nutrition, herbal medicine, Ayurveda and safety in pregnancy. Findings were synthesised narratively. **Results:** GDM can be interpreted heuristically as a pregnancy-specific disturbance of Agni and Kapha-Meda metabolism, with features overlapping Prameha, but this correlation is a modern construct. Randomised evidence supports individualised medical nutrition therapy favouring lower-glycaemic-index, fibre-rich carbohydrate, and some evidence supports myo-inositol for prevention, although certainty is generally low. No randomised trial of an Ayurvedic herb or formulation in women with GDM was identified; the only Ayurveda-specific GDM data were a decision-support modelling study and an animal study of *Tinospora cordifolia*. Safety data in pregnancy are lacking for most antidiabetic herbs, and contamination of some Ayurvedic products with heavy metals is a documented risk. **Conclusion:** Ayurvedic dietary and lifestyle principles may complement, but must not replace, standard GDM care. Herbal antidiabetic agents should not be used in pregnancy outside well-designed, ethically approved trials.

KEYWORDS: Gestational diabetes mellitus, Garbhini paricharya, Prameha, Ahara, medical nutrition therapy, herbal safety in pregnancy

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INTRODUCTION

Gestational diabetes mellitus is defined as carbohydrate intolerance of varying severity that is first recognised during pregnancy. It is one of the most common medical complications of pregnancy and its diagnosis and treatment remain subjects of debate, particularly over the glucose thresholds that should define the condition[1]. In most cases hyperglycaemia arises from pancreatic beta-cell dysfunction on a background of chronic insulin resistance; risk factors include overweight and obesity, advanced maternal age and a family history of diabetes, and GDM has been estimated to affect about one in six pregnancies worldwide[2].

The consequences extend beyond pregnancy. Maternal GDM increases the risks of macrosomia and birth complications in the infant, and of later type 2 diabetes and cardiovascular disease in the mother[2]. A 2026 meta-analysis of cohort studies found that offspring exposed to GDM in utero had a higher body mass index and roughly double the odds of overweight or obesity in adulthood[3]. Standard management therefore aims at near-normal maternal glycaemia through medical nutrition therapy, physical activity and self-monitoring of glucose, with insulin or metformin when targets are not met[1,4].

India has a large and growing population of women with GDM and a strong tradition of Ayurvedic antenatal care. Many pregnant women use complementary products, often without telling their obstetrician[5], and Ayurvedic practitioners are increasingly consulted about raised glucose in pregnancy. Yet GDM as such is not described in the classical texts, and the clinical evidence base for Ayurvedic interventions in GDM is, as this review shows, almost non-existent. The aim of this article is therefore conceptual and integrative: to offer an Ayurvedic framework for understanding GDM, to identify those elements of classical antenatal care (Garbhini paricharya) that are consistent with current evidence, and to state plainly where evidence is absent and where caution is required, particularly regarding the use of herbs in pregnancy.

METHODOLOGY

This narrative review was prepared in two parts. First, the classical texts of Ayurveda, namely Charaka Samhita (Sharira sthana, chapter 8, and Chikitsa sthana, chapter 6), Sushruta Samhita (Sharira sthana, chapter 10) and Kashyapa Samhita, were studied with their standard commentaries for the monthly antenatal regimen and for the description of Prameha[6–8]. Second, PubMed was searched for literature published up to October 2026 using combinations of the terms gestational diabetes, Ayurveda, Garbhini paricharya, Prameha, Madhumeha, diet, glycaemic index, herbal medicine, phytotherapy, fenugreek, myo-inositol, yoga and heavy metals. Guidelines, reviews, meta-analyses, randomised controlled trials, experimental studies and case reports were considered. Every reference cited in this article was checked against its PubMed record for authors, title, journal, year, volume, pages and digital object identifier. Retracted publications identified during the search were excluded. Because Ayurveda-specific clinical data on GDM were sparse, the review is deliberately conceptual, and the findings are synthesised narratively rather than statistically.

CLASSICAL CONCEPTS RELEVANT TO HYPERGLYCAEMIA IN PREGNANCY

1. Absence of GDM as a classical entity

The classical authors describe many disorders of pregnancy (Garbhini vyapad) and give detailed month-by-month regimens for the pregnant woman, but they do not describe a diabetes-like condition arising specifically during pregnancy and resolving after delivery. Any Ayurvedic account of GDM is therefore a modern interpretation built from general principles. This point is important for honesty in integrative writing: correlations between GDM and classical categories are heuristic aids to clinical reasoning, not evidence that the condition was known and successfully treated in antiquity.

2. Prameha and Madhumeha

Prameha is a group of twenty urinary disorders described by Charaka and Sushruta, characterised by excessive and turbid urination; Madhumeha, in which the urine is sweet, is the form most often equated with diabetes mellitus[7,9]. The classical causes include excessive intake of heavy, sweet, unctuous and freshly harvested foods, curd, dairy and sugar-cane products, together with sedentary habits and excessive sleep, all of which increase Kapha and Meda (adipose tissue) and impair Agni (digestive and metabolic capacity)[7,9]. Modern Ayurvedic writers have pointed to the conceptual overlap between this account and the bio-

medical picture of insulin resistance, obesity and lifestyle-related metabolic disease, and have proposed that Prameha purvarupa (prodromal Prameha) corresponds broadly to prediabetes[9].

3. Pregnancy as a Kapha-dominant state

Classical physiology regards pregnancy as a state in which the mother's Rasa dhatu (nutritive fluid) is divided to nourish her own body, the foetus and the breasts, and in which nourishing, heavy and unctuous foods are generally advised[6,8]. Read alongside the account of Prameha, this provides a plausible conceptual model of GDM: the anabolic, Kapha-increasing physiology of later pregnancy, superimposed on pre-existing Kapha-Meda excess, a sedentary lifestyle or a family predisposition (Sahaja prameha), may overwhelm Agni and produce a transient Prameha-like state. The model parallels the biomedical account in which placental hormones increase insulin resistance in the second and third trimesters and unmask limited beta-cell reserve in susceptible women[2]. It should be emphasised that this synthesis is the authors' interpretation, not a classical teaching, and it has not been tested empirically.

4. Implications of the classical model

Two practical implications follow. First, the classical approach to Prameha includes depletion therapies (Apatarpana) such as fasting, purification and vigorous exercise, many of which are clearly inappropriate in pregnancy, when the classical texts themselves prohibit strong purification and emphasise nourishment of the foetus[6,8]. Second, the classical regimen for pregnancy is nourishing rather than restrictive, so it cannot be applied unchanged to a woman with GDM. An integrative approach must therefore reconcile two goals: avoiding excess Kapha-Meda and glycaemic load, while ensuring adequate nutrition for foetal growth. This is essentially the same balance that modern medical nutrition therapy seeks.

STANDARD CARE AS THE FOUNDATION

Before any Ayurvedic contribution is considered, the standard of care must be clear. Guidelines recommend screening, typically with an oral glucose tolerance test at 24 to 28 weeks, and treatment that begins with medical nutrition therapy, physical activity and glucose self-monitoring; insulin and, increasingly, metformin are used when glycaemic targets are not met[1,4]. Pharmacological treatment remains essential for many women who do not reach targets with diet and activity alone[1,4].

Any Ayurvedic practitioner who sees a pregnant woman with raised glucose should therefore work within, not outside, this framework. The most useful contributions an Ayurvedic clinician can make lie in counselling on diet, daily routine, physical activity and stress, areas where standard guidelines already recommend intervention and where Ayurvedic language may improve acceptability and adherence for some women.

DIETARY INTERVENTIONS

1. Evidence from medical nutrition therapy

Medical nutrition therapy is the first-line treatment of GDM, but the optimal diet remains uncertain. A 2026 systematic review of 25 randomised studies in women with diagnosed GDM found that lower-glycaemic-index assignment reduced the proportion meeting criteria to start insulin in an exploratory analysis of two trials, although rescue switching removed the difference in actual insulin use, whereas lower-carbohydrate diets did not reduce insulin initiation. Fibre, staple-quality and provided-diet interventions improved some postprandial measures, but obstetric and neonatal benefits were not established, and certainty was low or very low. The authors concluded that carbohydrate amount should be individualised while prioritising nutrient-dense, lower-glycaemic-index, fibre-rich sources[10].

A 2026 network meta-analysis of 59 trials with 10,262 women comparing 24 nutritional strategies reported that the Dietary Approaches to Stop Hypertension (DASH) diet improved insulin resistance in women with GDM, that plant sterols improved glycated haemoglobin, and that inositol was associated with a lower incidence of GDM in high-risk women; the authors cautioned that several highly ranked interventions rested on limited evidence[11]. A broader Cochrane Response review prepared for World Health Organization guideline development found that dietary advice compared with usual care in pregnant women with diabetes may make little or no difference to gestational weight change, caesarean birth or birthweight, and rated most outcomes as low or very low certainty[12]. Taken together, these reviews support a moderate, individualised, high-quality diet rather than any single restrictive pattern.

2. Myo-inositol

Myo-inositol is not an Ayurvedic substance, but it is relevant to integrative counselling because it is widely marketed as a natural supplement. A 2026 meta-analysis of 12 randomised trials with 4,765 women without pre-existing diabetes found that myo-inositol taken before or during pregnancy reduced the risk of GDM by about 44%, without significant differences in hypertensive disorders, caesarean delivery or neonatal outcomes[13]. This is one of the more consistent signals for any nutritional supplement in GDM prevention, but it concerns prevention rather than treatment.

3. Translating Ayurvedic dietary principles

Several Ayurvedic dietary principles are compatible with this evidence. Preference for old (aged) rather than freshly harvested grains, millets and barley (Yava), pulses such as green gram (Mudga), and vegetables of bitter and astringent taste, along with avoidance of excess sweets, refined flour, sugar-cane products and heavy curd-based dishes, is advised classically for Prameha[7,9] and aligns with a lower-glycaemic-index, fibre-rich diet[10]. Eating freshly cooked, warm food at regular times in quantities matched to digestive capacity (Matravat ahara) is consistent with the emphasis on regular meals and portion control in modern GDM counselling. Small, frequent meals can be framed as protecting Agni from overload.

Some features of traditional antenatal diet need adaptation. The monthly regimen of Garbhini paricharya recommends milk, ghee, honey and sweet-tasting (Madhura) drugs at various stages[6,8]. In a woman with GDM, it is reasonable to retain the nourishing intent of this regimen while reducing sugars and high-glycaemic foods, choosing whole-grain and pulse-based preparations, and moderating the quantity of ghee and milk sweets according to weight gain and glucose readings. Spices commonly used in Indian cooking, such as ginger, turmeric, cumin and cinnamon, can be used in normal culinary amounts. Ginger is a useful example of a spice for which pregnancy data exist: an umbrella review of 18 systematic reviews concluded that ginger supplements at usual doses reduce nausea of pregnancy without an increase in adverse effects such as miscarriage, although methodological quality of the reviews was often low[14]. No equivalent body of evidence exists for most other Ayurvedic antidiabetic herbs.

HERBAL INTERVENTIONS: WHAT THE EVIDENCE SHOWS

1. Ayurveda-specific GDM data

The PubMed search identified only two Ayurveda-specific studies concerning GDM. The first, published in this journal in 2024, applied machine-learning algorithms to predict risk factors for GDM and discussed lifestyle measures and medicines described in Ayurvedic literature, including Garbhini paricharya, as possible management options; most classifiers achieved an accuracy of 75% to 82%[15]. This was a modelling study and did not test any Ayurvedic intervention in pregnant women. The second was an experimental study in which preparations of Guduchi (*Tinospora cordifolia*), including the aqueous extract (Satva), essential oil and a hydroalcoholic extract, were given to pregnant mice with streptozotocin-induced diabetes. The preparations increased serum insulin, improved indices of insulin sensitivity and beta-cell function, increased litter size and reduced placental weight, and the authors called for clinical trials[16]. Such animal data cannot establish efficacy or safety in pregnant women.

No randomised or controlled clinical trial of an Ayurvedic herb or classical formulation in women with GDM was found. This contrasts with traditional Chinese medicine, for which a meta-analysis of 19 randomised trials of a granule formulation added to conventional treatment reported fewer adverse pregnancy outcomes, while noting uneven trial quality[17]. The contrast highlights both the feasibility of such research and the scale of the gap in Ayurveda.

2. Spices and antidiabetic herbs studied outside pregnancy

A 2026 review from a Swiss university hospital described several spices and plants with clinically meaningful glucose-lowering effects in non-pregnant people, including ginger, psyllium, black cumin, nettle, cinnamon, fenugreek, aloe vera and bitter melon, and reported a pilot study in which adherence to integrating some of these spices into the diet of women with GDM was generally satisfactory. The authors emphasised that their use in pregnancy requires support from larger studies and appropriate clinical supervision[18]. Many of these plants, including Methika (fenugreek, *Trigonella foenum-graecum*) and

Karavellaka (bitter melon, *Momordica charantia*), also appear in Ayurvedic practice for Prameha. Evidence of glucose-lowering in type 2 diabetes cannot simply be transferred to pregnancy, in which foetal exposure, placental transfer and the risk of maternal hypoglycaemia alter the risk-benefit balance.

3. Safety concerns specific to pregnancy

Several safety issues require emphasis. First, pharmacological doses of herbs differ from culinary use, and reassurance about a spice used in food does not extend to concentrated extracts. A descriptive cohort from Morocco recorded maternal consumption of fenugreek or other plants in 36% of infants born with neural tube defects; this observation does not establish causation, since the same mothers often lacked folic acid supplementation, but it illustrates why concentrated plant use in early pregnancy should not be assumed to be harmless[19]. Second, most Ayurvedic antidiabetic herbs, including Guduchi, Methika, Karavellaka, Jambu (*Syzygium cumini*), Meshashringi (*Gymnema sylvestre*) and Haridra (*Curcuma longa*) in medicinal doses, lack adequate human pregnancy safety data. Third, herbomineral formulations used for Prameha, including those containing processed metals or Shilajatu, have not been evaluated in pregnancy; case reports of lead poisoning following non-prescription Ayurvedic preparations underline the importance of quality-controlled products, licensed practitioners and the avoidance of metal-containing preparations where safety is uncertain[20]. Finally, the combination of a glucose-lowering herb with insulin or metformin could increase the risk of hypoglycaemia, and women frequently do not disclose complementary medicine use to their clinicians; in a meta-analysis from Iran only 31% of pregnant users did so[5].

For these reasons, the authors consider that Ayurvedic antidiabetic herbs and formulations should not currently be prescribed for GDM in routine practice. Their evaluation should proceed through properly designed and ethically approved trials, beginning with pharmacokinetic and safety studies and conducted alongside, not instead of, standard obstetric care.

LIFESTYLE, DINACHARYA AND STRESS

The classical texts advise the pregnant woman to avoid both excessive exertion and excessive sleep and inactivity, to maintain a calm and pleasant mind, and to follow a regular daily routine[6,8]. These recommendations are consistent with modern advice. Regular moderate physical activity is a standard component of GDM management, although a recent systematic review found that physical activity interventions in women with GDM likely made little difference to gestational weight change and birthweight[12]. Prenatal yoga, which combines gentle postures, breathing and meditation, is a culturally familiar option in India. A systematic review of relaxation interventions in pregnancy, including yoga, found that they reduced maternal stress, anxiety and depressive symptoms and modestly increased birthweight[21]. Whether yoga improves glycaemic outcomes in GDM specifically has not been established, but it may help women adhere to physical activity and manage the psychological burden of the diagnosis.

Ayurvedic writers have also proposed that Garbhini paricharya, by shaping the intrauterine environment through maternal diet, conduct and mental state, may influence the risk of non-communicable disease in offspring through epigenetic mechanisms. A review on this question found no clinical trials or review studies that tested the concept, although it judged the classical emphasis on maternal diet and lifestyle to be consistent with developmental-origins research[22]. This is an attractive hypothesis given the offspring risks associated with GDM[3], but it remains untested.

DISCUSSION

This review set out to examine what Ayurveda can contribute to the care of women with GDM. Three conclusions emerge. First, the classical texts do not describe GDM, and the Ayurvedic interpretation offered here, of a Kapha-Meda and Agni disturbance resembling Prameha and unmasked by the anabolic physiology of pregnancy, is a modern conceptual construct[2,6,7,9]. It is coherent and may be useful in communicating with patients, but it should not be presented as classical knowledge or as evidence of efficacy.

Second, where the Ayurvedic and biomedical approaches overlap, namely in a moderate, regular, fibre-rich diet based on whole grains, millets and pulses, avoidance of refined sugars, regular physical activity and attention to mental well-being, they are compatible with current evidence, though that evidence itself is generally of low certainty[10–12,21]. The

practical value of Ayurveda here lies less in new therapies than in culturally resonant counselling that may improve adherence. This hypothesis is testable: pragmatic trials could compare standard dietary counselling with counselling framed in Ayurvedic terms, measuring adherence, glycaemic control and pregnancy outcomes.

Third, there is a near-total absence of clinical evidence for Ayurvedic herbs and formulations in GDM. The only Ayurveda-specific studies identified were a modelling study and a mouse study[15,16]. Glucose-lowering effects observed outside pregnancy[18] do not establish safety for the foetus, and concerns about concentrated plant use in early pregnancy, product contamination and non-disclosure persist[5,19,20]. The authors therefore advise against prescribing antidiabetic herbs for GDM outside research settings.

Several research priorities follow. Observational studies should document how often women with GDM in India use Ayurvedic products, which products they use and whether they disclose them. Herbs selected for clinical study should first have adequate reproductive toxicology data, and early trials should focus on safety and pharmacokinetics under obstetric supervision. Dietary trials could test Ayurvedic food patterns, such as millet- and pulse-based diets, as forms of medical nutrition therapy with standard glycaemic and neonatal outcomes. Trials should also follow women after delivery, since GDM identifies a population at high future risk of type 2 diabetes in whom Ayurvedic lifestyle approaches might later be tested more freely[2].

From a clinical perspective, the Ayurvedic practitioner's role in GDM should be supportive: reinforcing dietary and lifestyle advice, encouraging adherence to glucose monitoring and prescribed treatment, asking about all supplements and herbal products, and referring promptly when glucose targets are not met. Insulin or metformin should never be withheld or replaced by herbal treatment.

CONCLUSION

GDM is not a classical Ayurvedic entity, but it can be understood within Ayurvedic theory as a pregnancy-specific disturbance resembling Prameha. Ayurvedic dietary and lifestyle principles that favour whole grains, pulses, regular meals, moderate activity and mental calm are compatible with current, if low-certainty, evidence and may improve the acceptability of standard nutrition therapy. There is no clinical evidence for Ayurvedic herbs or formulations in GDM, and their safety in pregnancy is largely unknown. Until rigorous safety and efficacy studies are available, Ayurvedic care for GDM should be limited to diet, lifestyle and supportive counselling delivered alongside standard obstetric management.

REFERENCES

1. ACOG Practice Bulletin No. 190: gestational diabetes mellitus. Obstet Gynecol 2018;131(2):e49–64.
2. Plows JF, Stanley JL, Baker PN, Reynolds CM, Vickers MH. The pathophysiology of gestational diabetes mellitus. Int J Mol Sci 2018;19(11):3342. https://doi.org/10.3390/ijms19113342
3. Wu Y, Shen K, Guo H, Wang H. Long-term metabolic consequences of in utero gestational diabetes exposure and maternal treatment interventions: a systematic review and meta-analysis. Front Endocrinol (Lausanne) 2026;17:1904624. https://doi.org/10.3389/fendo.2026.1904624
4. Gundeti M, Vidiyala N, Dalvi S, Girase R, Thota SK, Paudel KR, et al. Next-generation Pluronic micelles for advanced drug delivery application. Macromol Mater Eng. 2026;311(9):e70344.
5. Najibi SM, Rajaie SH, Hajimonfarednejad M, Hashempur MH. Systematic review and meta-analysis of complementary and alternative medicine use during pregnancy in Iran. BMJ Open 2026;16(6):e103223. https://doi.org/10.1136/bmjopen-2025-103223
6. Agnivesha. Charaka Samhita, revised by Charaka and Dridhabala, with Ayurveda Dipika commentary of Chakrapanidatta. Sharira sthana, chapter 8 (Jatisutriya sharira). Edited by Yadavji Trikamji Acharya. Varanasi: Chaukhamba Surbharati Prakashan; 2011.
7. Agnivesha. Charaka Samhita, revised by Charaka and Dridhabala, with Ayurveda Dipika commentary of Chakrapanidatta. Chikitsa sthana, chapter 6 (Prameha chikitsa). Edited by Yadavji Trikamji Acharya. Varanasi: Chaukhamba Surbharati Prakashan; 2011.
8. Sushruta. Sushruta Samhita, with Nibandhasangraha commentary of Dalhana. Sharira sthana, chapter 10 (Garbhini vyakarana sharira). Edited

by Yadavji Trikamji Acharya. Varanasi: Chaukhamba Orientalia; 2014.
9. Kurian J, Bilagi A, Deo G. Etiopathogenesis and management of Prameha poorvaroopa (prediabetes), Prameha and Madhumeha (diabetes mellitus): an ancient perspective. Adv Mind Body Med 2024;38(3):47–51.
10. Aggarwal S, Chawla GK, Gupta R. Carbohydrate quality versus quantity in gestational diabetes mellitus while considering randomized dietary interventions: a systematic review. Cureus 2026;18(9):e117076. https://doi.org/10.7759/cureus.117076
11. Kumar RKT, Dharmamoorthy G, Vasavi DD, Vidiyala N, Bagade OM, Elumalai S, et al. Phytoconstituent-based green synthesis of nanoparticles: sources and biomedical applications in cancer therapy. Asian J Green Chem. 2025;9(3):329-54.
12. Villanueva G, Buckley B, Probyn K, Petkovic J, McIntosh H, Pelone F, et al. Maternal care interventions for pregnant women with diabetes: a systematic review of antenatal education, diet, physical activity, and weight management. Pregnancy (Hoboken) 2026;2(2):e70218. https://doi.org/10.1002/pmf2.70218
13. Poyatos-León R, Martínez-Vizcaíno V, Sequí-Domínguez I, Sanabria-Martínez G, Díez Fernández A, Martínez-Hortelano JA. The effect of myo-inositol supplementation on gestational diabetes mellitus prevention: a systematic review and meta-analysis. Am J Obstet Gynecol 2026;235(5):1024–36. https://doi.org/10.1016/j.ajog.2026.05.020
14. Srinivasarao DA, Vidiyala N. Stimuli-responsive polymeric nanoparticles for cancer therapy. In: Advances in stimuli-responsive nanosystems for cancer therapy. Singapore: Springer Nature; 2026. p. 39-63.
15. Shetty NP, Shetty J, Hegde V, Dharne SD, Kv M. A machine learning-based clinical decision support system for effective stratification of gestational diabetes mellitus and management through Ayurveda. J Ayurveda Integr Med 2024;15(6):101051. https://doi.org/10.1016/j.jaim.2024.101051
16. Jahnavi P, Kumar AK, Prema S, Singamaneni VR, Vidiyala N, Sunkishala P, et al. Recent progress in heterogeneous catalysis for sustainable chemical processes. J Chem Rev. 2026;8(2):154-79.
17. Zhang LJ, Hu XQ, Yu JJ, Wang Y, Zhang JW, Xu XR, et al. Meta-analysis of Shenqi Jiangtang Granules combined with western medicine on adverse pregnancy outcomes in women with gestational diabetes mellitus. Zhongguo Zhong Yao Za Zhi 2022;47(10):2811–8.
18. Schenk S, Pignolet-Marti A, Graz B, Cavin AL, Puder JJ. Role of spices in the management of diabetes and gestational diabetes. Rev Med Suisse 2026;22(964):954–8. https://doi.org/10.53738/REVMED.2026.22.964.48572
19. Forci K, Bouaiti EA, Alami MH, Mdaghri Alaoui A, Thimou Izgua A. Incidence of neural tube defects and their risk factors within a cohort of Moroccan newborn infants. BMC Pediatr 2021;21(1):124. https://doi.org/10.1186/s12887-021-02584-5
20. Acharya-Büch R, Ivaki P, Jeitler M, Murthy V, Kessler CS. A case report of adult lead poisoning following the use of nonprescription Ayurvedic medication in Germany. Complement Med Res 2025;33(1):59–68. https://doi.org/10.1159/000549523
21. Abera M, Hanlon C, Daniel B, Tesfaye M, Workicho A, Girma T, et al. Effects of relaxation interventions during pregnancy on maternal mental health, and pregnancy and newborn outcomes: a systematic review and meta-analysis. PLoS One 2024;19(1):e0278432. https://doi.org/10.1371/journal.pone.0278432
22. Hechhu R, Krishnan K, Singamaneni V, Raju PVN, Erukulla P, Kandimalla KV, et al. GC-MS-based phytochemical analysis, in-depth ADMET screening and molecular docking targeting EGFR for anticancer potential. Chem Methodol. 2026;10(5):465-88.