

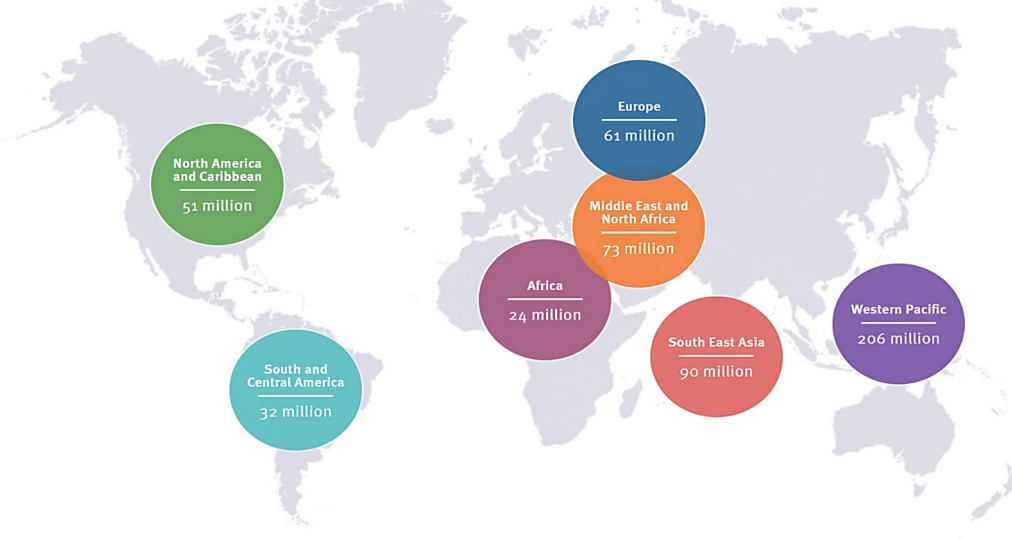
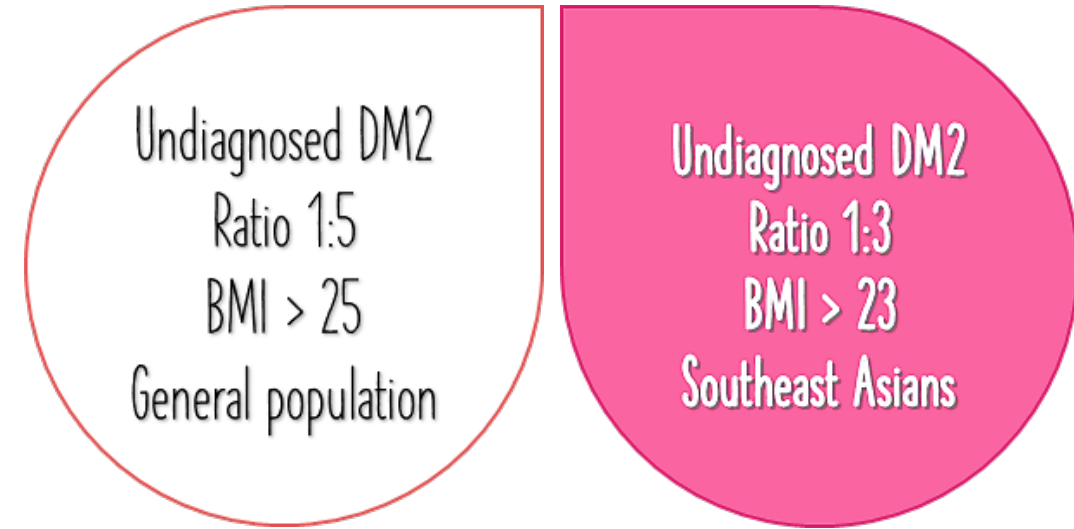
Among Adults with Diabetes Type 2, Does Herbal Medicine Help to Stabilize Blood Glucose Compared to No Usage?

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ABSTRACT

Diabetes Mellitus type 2 (DM2)³:

Diabetes around the world in 2021



- Potential causes: reduced beta cell function, impaired insulin action related to lower muscle mass, and high ectopic fat deposits in the liver & muscle.⁴
- Moderately low health-related quality of life in Vietnamese patients, especially social and mental health.⁶

Herbal medicine (HM) in DM2 treatment:

- Low cost with minimal to no side effects.
- Improve overall health.
- Reduce diabetic complications (cardiovascular disease, retinal neuropathy)
- Effective control of carbohydrate metabolism (e.g., onion-quercetin, grapevine-resveratrol).
- Improve insulin sensitivity, secretion & hypoglycemic effects (high content of phenolic compounds, flavonoids, terpenoids, alkaloids, and glycosides).⁸

Goal: Compare the benefits of HM in conjunction with conventional treatments for diabetic treatment with no herbal usage in Asian adults with DM2.

LITERATURE REVIEW

Alzahrani et al., 2021: A systematic review and meta-analysis of complementary and alternative medicines (CAM) used in 25 countries, including the United States and some Southeast Asian countries (Malaysia, Singapore, Thailand); 9 databases; from 2009 to June 2019; 3,351 reference articles to the final 38.¹

Prasopthum et al., 2022: A cross-sectional evaluation of herbal medicine: sample size of 739 patients in four district hospitals in Thailand from October 2018 to October 2019.⁶

Salleh et al., 2021: A systematic review of medicinal plants in Association of Southeast Asian Nations (ASEAN) countries: Brunei, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam, Myanmar, Singapore, and Cambodia; 4 databases; from the 1900s to 2021; 1,209 reference articles to the final 3.⁸

Zhang et al., 2019: A systematic review and meta-analysis of Chinese Herbal Medicine for diabetic kidney disease: 5 English & 4 Chinese databases; from inception to May 2018; 7,255 reference articles to the final 20.⁹

LEVEL OF EVIDENCE

Alzahrani et al., 2021: Level 3A (systematic review of non-experimental studies with meta-analysis).⁵

Prasopthum et al., 2022: Level 3A (non-experimental study).⁵

Salleh et al., 2021: Level 2A (systematic review of RCTs and quasi-experimental studies without meta-analysis).⁵

Zhang et al., 2019: Level 1B (systematic review of RCTs with meta-analysis).⁵



RECOMMENDATION

- Consider medicinal plants (e.g., cinnamon, aloe vera, bitter melon, turmeric with garlic, & rosella flower, etc.) in conjunction with conventional medication, especially in the early stages.^{1,7,8,9}
- Educate healthcare providers and patients on the concomitant use of HM & prescribed treatments (herb-drug interactions).^{1,8,9}
- Keep an open-minded approach among healthcare professionals to encourage reports of HM used in DM2 treatments.⁷
- Enhance the acceptability of HM by healthcare providers.⁷
- Revise current diabetic management and make educated choices based on scientific guidelines on the use of medicinal plants (e.g., WHO Guidelines on Good Agricultural and Collection Practices for Medicinal Plants, WHO Monographs on Selected Medicinal Plants).^{1,7,8,9}
- Include the patients & their relatives/friends/caregivers in the diabetic care plan.⁷
- Incorporate HM into comprehensive medication reviews in community pharmacies, primary care, nutrition, & lifestyles.^{1,2}
- Facilitate HM integration into national health systems, specifically in developing countries with limited health insurance coverage.⁷
- Community outreach to offer low-cost solutions to the underserved population.⁸
- Increase future systematic reports & carefully designed prospective studies to create safety profiles of commonly used HM in DM2 & promote rational use through evidence-based guidelines and patient-centered approaches.^{1,7,8,9}

Key global findings 2021

- 90 million people with diabetes
- 1 in 2 adults with diabetes
- 747 medicinal plants

THE BENEFITS OF PLANT-BASED NUTRITION

WHO Monographs on selected medicinal plants

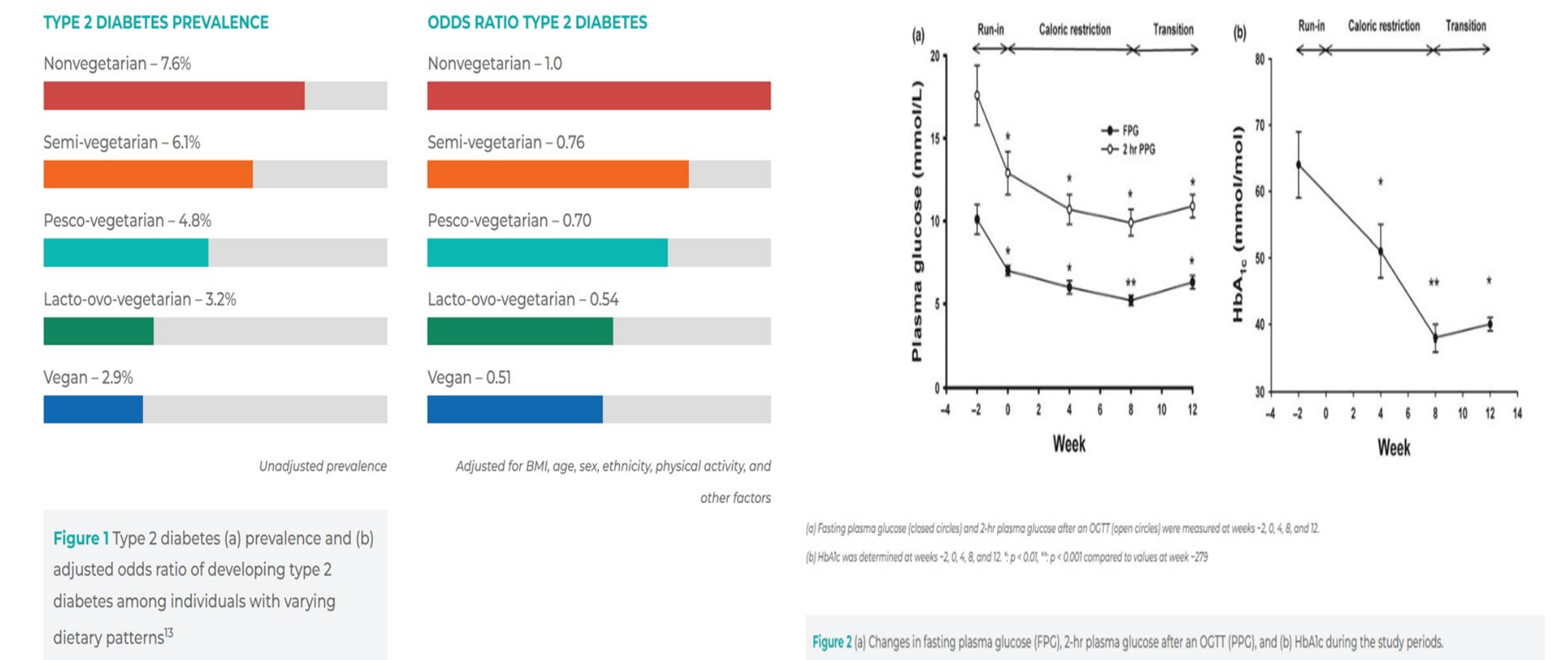
Medicinal Plants and Herbs for Diabetes (Diabetes Action - Research and Education Foundation, 2023)	
American Ginseng (<i>Panax quinquefolium</i>)	Gurmar (<i>Gymnema sylvestre</i>)
Bay (<i>Laurus nobilis</i>)	Hydroxylic Acid (HCA)
Berberine	Lagerstemia speciosa
Bitter Melon (<i>Momordica charantia</i>)	Nopal (<i>Opuntia inulifolia</i>)
Cayenne (<i>Capiscum frutescens</i>)	Onions and Garlic (<i>Allium cepa</i> and <i>Allium sativum</i>)
Cinnamon	Pomegranate (<i>Punica granatum</i>)
Curcumin (Turmeric)	Pyrogallol
Evening Primrose Oil (Gamma linolenic acid or GLA)	Red Yeast Rice (<i>Monascus purpureus</i>)
Fenugreek (<i>Trigonella foenum-graecum</i>)	Resveratrol
Flea (<i>Linum usitatissimum</i>)	Silymarin (Milk Thistle)
Ginger (<i>Zingiber officinale</i>)	Sulforaphane
Ginkgo Biloba	Tea (<i>Camellia sinensis</i>)

IMPLEMENTATION

- Establish institutional and national policies for herbal use in medical, pharmacological, and nutritional screening.
- Inquire and encourage patients' disclosure of herbs used (knowledge, utilization, friends' and relatives' usage)
- Discuss herb-drug interactions & share safety profiles of the common herbs used.
- Create and distribute pamphlets (in hospitals, community clinics, and public centers) in the native language with pictures of plants/herbs.
- Enlist help from naturopathic practitioners, herbalists, nutritionists, and local community health centers for up-to-date patient education, consistent monitoring, effective management of blood glucose, & support for self-management.
- Monitor the patient's diabetic profiles (serum glucose, Hgb A1C%, C-peptide, BMI, electrolyte & metabolic panel, etc.) with an open discussion regarding the concurrent usage of herbs with prescribed medications.
- Incorporate whole food plant-based nutrition and lifestyle activities that reduce diabetic complications & optimize overall health.

EVALUATION

- Questions & answers, verbal confirmation, feedback, and acknowledgment of HM education from the patients on every service day: **Empower** the patient with knowledge ⇔ **Increase** patient satisfaction.
- Longitudinal medical and laboratory records that track prescribed diabetic medications and concurrent herbs with updates every visit (minimum 3 months for uncontrolled and bi-yearly for controlled DM2): **Improve** blood glucose stabilization ⇔ **Increase** long-term physical, mental, emotional, and spiritual health & **Reduce** secondary comorbidities.
- Frequent updates on evidence-based research of medicinal plants used in DM2 for patients and healthcare providers: **Maximize** the benefits of HM in conjunction with conventional treatment ⇔ **Holistic medicine**.



Nature heals! Food is Medicine! Plant Power!

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