



(SHORT COMMUNICATION)



INVESTIGATION OF CORIANDER SATIVUM LEAVES IN THE MANAGEMENT OF HYPERGLYCEMIA IN A PARTICIPANT WITH PREDIABETES

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ABSTRACT

The study evaluated the relationship between incorporating coriander leaves into meals and postprandial glucose levels in a participant with prediabetes. A pre-diabetic male participant consumed meals prepared from the same batches of home-cooked spilt pigeon peas soup with rice (Food Group 1) and tofu with roti (Food Group 2) on separate evenings for three days, either with or without coriander leaves. Mean blood glucose levels were measured using a glucometer before each meal and at 2, 4, and 13 hours (fasted glucose levels) after the meal. In both food groups, glucose levels peaked at 2 hours and then decreased toward baseline. Postprandial glucose levels at 2 and 4 hours were lower when coriander leaves were consumed with the meals (38.9% and 59.4% reduction over 2 and 4 hours, respectively, in the Food group 1 and 35.5% and 10.1% reduction over 2 and 4 hours, respectively, in Food group 2). Overnight fasted glucose levels were not affected by consumption of coriander leaves.

This single-participant study provides preliminary evidence that incorporating fresh coriander leaves into regular meals may help reduce spikes in postprandial blood glucose levels in a participant with prediabetes, consistent with the observations from earlier animal studies.

Keywords: Coriander Leaves, Hyperglycemia, Postprandial Glucose Level, Prediabetes

1 INTRODUCTION

Type 2 diabetes mellitus (T2DM) is a metabolic disorder characterized by hyperglycemia, insulin resistance, and impaired insulin secretion, and it remains a major global health challenge [1,2]. Prediabetes, defined by a glycosylated hemoglobin (HbA1C) level of 5.7% to 6.4%, commonly precedes T2DM and is associated with risk factors such as obesity or excess weight, poor dietary habits, physical inactivity, age, genetics, ethnicity, etc. [3]. Preventing progression from prediabetes to T2DM may require combined lifestyle approaches, including physical activity, low-glycemic foods, and

dietary components that reduce postprandial glucose and insulin responses after consumption of high-glycemic carbohydrates [4,5,6].

Coriandrum sativum (coriander) is an edible herb whose leaves, fruits, and stems have long been used in culinary and traditional medicinal practices [7]. Studies have reported that coriander may have anxiolytic, anticonvulsant, antimigraine, neuroprotective, analgesic, diuretic, hypoglycemic, hypolipidemic, hypotensive, anticancer, antioxidant, and antidiabetic properties [8]. Its seeds and leaves contain polyphenols, flavonoids and essential oils that may contribute to glucose lowering effects by stimulating insulin secretion from pancreatic beta cells, improving insulin sensitivity, and inhibiting carbohydrate-digesting enzymes. Previous studies have investigated the antihyperglycemic effects of coriander seeds in humans [9] and the glucose-lowering effects of coriander leaves (cilantro) and seeds in animal models [10,11]. Therefore, the purpose of this exploratory study is to investigate whether the antidiabetic effects of coriander leaves observed in animal studies may also be reflected in a prediabetic human case.

2 MATERIALS AND METHODS

A 61-year-old pre-diabetic male (66 kg and BMI of 28.1) with a history of high blood pressure, hypercholesteremia, baseline fasted glucose levels of > 100 mg/dL and HbA1C of 6.2% was the only participant in the study, who provided informed consent. Ethical review was omitted because this study constitutes self-experimentation, posing zero risk to external human subjects.

The study contained two food groups which were home cooked spilt pigeon peas soup (225 g) with rice (75 g) (Food Group 1) and tofu curry (225 g) with two rotis (total 110 g) (Food Group 2). Initially, the participant consumed food without coriander leaves in the evening (~ 6:00 PM) for 3 days (Figure 1).

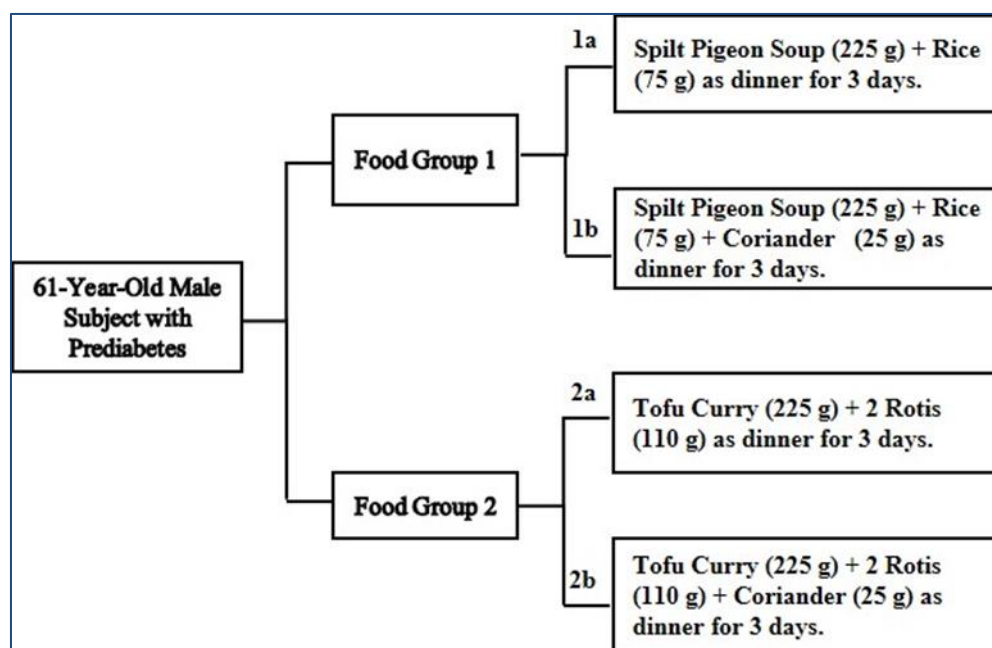


Figure 1: Study Diagram

After 3 days, the participant consumed the food from the same batch mixed with 25 g of commercially available chopped coriander leaves in the same manner. To minimize the contribution of other blood glucose level altering factors such as snacks or physical activity post dinner, no other food was taken, and same level of physical activity was maintained in the evening. Also, the same batch of cooked food was taken with or without coriander leaves.

The blood glucose levels were measured using a glucometer (Contour Blood Glucose Monitor, Diabetes Care US, Parsippany, NJ, USA) before and after having the food at 2, 4, and 13 hours (fasted glucose levels). The blood glucose levels are expressed as mean $\pm$ standard deviation. The comparison of data from meals with vs without coriander was performed using Welch's unpaired t-test, which does not assume equal variances. Given the exploratory nature of the study and limited statistical power, p-values were interpreted descriptively rather than as strict indicators of significance. All statistical analyses were performed using Excel.

3 RESULTS AND DISCUSSION

Coriander leaves are commonly consumed as an herb/flavoring agent in culinary practice all over the world [7]. It was found to decrease blood sugar levels in animal models [10,11] but human data are lacking. The present exploratory study, therefore, evaluated whether the addition of fresh coriander leaves to commonly consumed meals with varied carbohydrate content impacts postprandial blood glucose responses in an adult with prediabetes. Table 1 summarizes mean blood glucose levels at 0, 2, 4, and 13 hours (overnight fasting value), and the corresponding changes after consumption of food with coriander leaves (food groups 1b and 2b) or without coriander leaves (food groups 1a and 2a).

In both food groups, glucose levels peaked at 2 hours and then decreased toward baseline. Postprandial glucose levels at 2 and 4 hours were lower when coriander leaves were consumed with the meals. For the Split Pigeon Soup with rice meal, the glucose levels decreased from 43.7 ± 13.7 mg/dL to 26.7 ± 6.66 mg/dL over 2 hours, representing 38.9% decrease in the postprandial spike ($p = 0.12$) with the addition of coriander leaves. The glucose levels at 4 hours reduced from 32.0 ± 7.00 mg/dL to 13.0 ± 6.60 mg/dL, representing approximately 59.4% decrease in the postprandial spike ($p = 0.03$) with the addition of coriander leaves.

A comparable pattern was observed for the tofu curry with rotis meal: the 0–2 h mean change in glucose levels decreased from 62.0 ± 10.4 mg/dL to 40.0 ± 5.20 mg/dL and the 0–4 h mean change in glucose levels decreased from 23.0 ± 8.66 mg/dL to 20.7 ± 16.9 mg/dL when coriander was included. Although the absolute glucose rise was higher for this meal, coriander again reduced the glucose levels at 2 h by 35.5% ($p = 0.05$). The glucose levels at 4 hours were also reduced by 10.1% ($p = 0.81$) but the percentage change was much lower compared to Food group 1.

Overnight fasted glucose levels were not affected by consumption of coriander leaves as the glucose values with or without coriander leaves from both food groups were similar and were in the range of 98.3 ± 5.51 to 107 ± 8.10 mg/dL.

Across both meal types tested, the inclusion of coriander leaves with a carbohydrate-heavy meal consistently attenuated the rise in blood glucose levels during the early postprandial period of first two hours after meal ingestion, the period during which carbohydrate absorption and insulin response are most active. The glucose-lowering effects were modest but reproducible although the small sample size limits definitive conclusions. The fasted glucose levels of 13 hours were similar with or without coriander suggesting a lack of response over longer period of time. These findings suggest a potential physiological benefit related to improved insulin sensitivity or delayed carbohydrate absorption despite limited statistical significance. Given that coriander leaves and stems are mostly water, digest slowly, and have a low glycemic impact, it won't spike glucose levels. However, fiber in coriander leaves can slow down the absorption of sugar into the blood stream. It is worth mentioning that the participant experienced bloating, itching, and increased urination when food was consumed with coriander leaves only.

Table 1: Effect of Coriander Sativum Leaves on Blood Glucose Levels in a Participant with Prediabetes

Food Group	Blood Glucose Level (mg/dL)				Change in Post Prandial Glucose Level (mg/dL)		
	0 h	2 h	4 h	13 h	0 to 2 h	0 to 4 h	0 to 13 h
Spilt Pigeon Soup (225 g) + Rice (75 g) (1a)	99.3 ± 6.03	143 ± 19.5	131 ± 3.21	103 ± 3.21	43.7 ± 13.7	32.0 ± 7.00	4.00 ± 8.89
Spilt Pigeon Soup (225 g) + Rice (75 g) + Coriander leaves (25 g) (1b)	111 ± 16.5	138 ± 20.4	124 ± 22.7	98.3 ± 5.51	26.7 ± 6.66 (p = 0.12) ^a	13.0 ± 6.60 (p = 0.03) ^b	-12.7 ± 21.9 (p = 0.29) ^a
Tofu curry (225 g) + 2 Rotis (110 g) (2a)	82.3 ± 11.2	144 ± 17.6	105 ± 3.06	107 ± 8.10	62.0 ± 10.4	23.0 ± 8.66	24.3 ± 15.8
Tofu curry (225 g) + 2 Rotis (110 g) + Coriander leaves (25 g) (2b)	102 ± 6.56	142 ± 8.89	111 ± 38.7	105 ± 3.79	40.0 ± 5.20 (p = 0.05) ^a	20.7 ± 16.9 (p = 0.81) ^a	2.67 ± 7.57 (p = 0.17) ^a

Results are expressed as mean ± standard deviation, n = 3. Comparisons between meal vs meals + coriander were performed using Welch's unpaired t-test.; ^a Not statistically significant (p > 0.05); ^b Significant at p < 0.05

4 CONCLUSION

Overall, the findings provide preliminary evidence that incorporating coriander leaves into meals may modestly reduce postprandial glucose levels in humans. This appears to be a simple dietary strategy for managing blood sugar levels in adults with prediabetes. Future research, however, is needed to confirm these findings by conducting larger, controlled studies in individuals with impaired glucose tolerance or diabetes and evaluate underlying mechanisms.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

All authors declares no financial or non-financial conflicts of interest.

Statement of informed consent

Informed Consent was obtained from the sole participant in this study.

REFERENCES

- [1] Hossain MJ, Al-Mamun M, Islam MR. Diabetes mellitus, the fastest growing global public health concern: Early detection should be focused. *Health Sci Rep* 2024;7(3):e2004.
- [2] Lima JEBF, Moreira NCS, Sakamoto-Hojo ET. Mechanisms underlying the pathophysiology of type 2 diabetes: From risk factors to oxidative stress, metabolic dysfunction, and hyperglycemia. *Mutat Res Genet Toxicol Environ Mutagen* 2022;874-875:503437.
- [3] Unnikrishnan R, Shaw JE, Chan JCN, Wild SH, Peters AL, Orrange S, et al. Prediabetes. *Nat Rev Dis Primers* 2025;11:49.
- [4] Husak V, Shvadchak V, Bobrova O, Faltus M, Hryhoriv Y, Karbivska U, et al. Plant-derived strategies for glycemic management in diabetes: A narrative review. *Diabetology* 2026;7(2):29.
- [5] Huang X, Huang G, Jiang M, Wei G. Effectiveness of diet-combined exercise interventions for glycemic control in patients with type 2 diabetes: a meta-analysis of randomized controlled trials. *J Sports Med Phys Fitness* 2026;66(2):306-19.
- [6] Kashtoh H, Baek KH. Recent updates on phytoconstituent alpha-glucosidase inhibitors: An approach towards the treatment of type two diabetes. *Plants (Basel)* 2022;11(20):2722.
- [7] Spence C. Coriander (cilantro): A most divisive herb. *Int J Gastron Food Sci* 2023;33:100779.
- [8] Sobhani Z, Mohtashami L, Amiri MS, Ramezani M, Emami SA, Simal-Gandara J. Ethnobotanical and phytochemical aspects of the edible herb *Coriandrum sativum* L. *J Food Sci* 2022;87(4):1386–422.
- [9] Zamany S, Barzegar A, Aghapour B, Ferdosi F. Effects of dietary supplementation with coriander seed powder on serum lipid profile, glycemic indices, and oxidative stress biomarkers in patients with type 2 diabetes mellitus: A randomized, double-blind, placebo-controlled trial. *Prev Nutr Food Sci* 2025;30(6):529-38.
- [10] Yella SST, Kumar RN, Ayyanna C, Varghese AM, Amaravathi P, Vangoori Y. The combined effect of *Trigonella foenum* seeds and *Coriandrum sativum* leaf extracts in alloxan-induced diabetes mellitus Wistar albino rats. *Bioinformation* 2019;15(10):716-22.
- [11] Sreelatha S, Inbavalli R. Antioxidant, antihyperglycemic, and antihyperlipidemic effects of *Coriandrum sativum* leaf and stem in alloxan-induced diabetic rats. *J Food Sci* 2012;77(7):T119-23.