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## A experimental study to assess the effectiveness of ginger tea in type 2 diabetes among adults (Above 40yrs) in selected area in Tirunelveli (Kadayanallur)

**G Sathiyabama and Mathunitha R**

### Abstract

Diabetes mellitus is an ICEBERG disease, which is the most common condition in all over the countries. The present study was aim to evaluate the effectiveness of ginger tea among type 2 diabetes mellitus patients in selected area of Tirunelveli. A quantitative approach with quasi experimental research design was adopted for the present study. In samples 60 type 2 diabetes mellitus patient among which one group (30) is experimental group and other 30 is control group by using probability purposive sampling technique. An experimental group received a 2gm/day of ginger root for 21 days. A self- structured questionnaire method was used to collect both the demographic data and knowledge about the type 2 diabetes mellitus. After intervention the experimental group value of post test 't' test value is 9.187 was found to be statistically significant at p greater than 0.001. Hence the findings of present study concluded that was significantly improvement in the post test level of blood glucose in the experimental group which clearly infers that ginger tea on blood glucose level was found to be effective in reducing the level of blood glucose among type 2 diabetes patients.

**Keywords:** ginger, type 2 diabetes mellitus, adults above 40yrs

### Introduction

Diabetes is one of the four major types of non communicable disease. Polyuric diseases have been reported for over 3500 years. The name "diabetes" comes from the Greek word for a syphon; the sweet taste of diabetic urine was acknowledged at the beginning of the first millennium, but the adjective "mellitus" (honeyed) was added by ROLLO in the late 18<sup>th</sup> century [1].

The sugar in diabetic urine was identified as glucose by chevreur in 1815. In the 1840s. Laguesse suggested that the pancreatic "islets" described by Langerhans in 1869, produced an internal secretion that regulated glucose metabolism [2].

In 2019, approximately 463 million adults (20 – 79 yrs) were living with diabetes; by 2045 this will rise to 700million (According to the International Diabetic Federation). The proportion of people with type 2 diabetes is increasing in most countries. In low and middle living income countries have 79% of adult with diabetes [3]. The global prevalence of impaired glucose tolerated is estimated to be 7.5% (374 million) in 2019 and projected to reach 8.0% (454 million) by 2030 and 8.6% (548 million) by 2045 [4].

**According to the world health organization:** diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose which leads over time to serious damage to the heart, blood vessels, eye, kidneys and nerves [5].

The term diabetes mellitus describes "a metabolic disorder of multiple etiology characterized by chronic hyperglycemia with disturbances of carbohydrates, fat, and protein metabolism resulting from defects in insulin secretion, insulin action or both. The effects of diabetes mellitus include long term damage, dysfunction and failure of various organs. Diabetes mellitus may present with the symptoms of polyuria, thirst, blurring of vision and weight loss [6].

Ginger is the part of the Zingiberaceae family, which is typically grows in warmer areas of Asia – such as china, India, and Japan. It is also grows in West Africa, South America and the Middle East [7, 8]. This spice is not only used for medicine but also for cooking that increase a aroma in food. It has been used for thousands of years for the treatment of numerous ailments, such as colds, nausea, arthritis, migraines and hypertension [9].

Several authors have reviewed the medicinal, chemical and pharmacological properties of ginger. Ginger is recognized by the U.S. Food and Drug Administration (FDA) as a food additive that is “generally recognized as safe” [10, 11]

In globally rhizome of *Zingiber officinale* is widely used for treatment and medicinal purposes due to its ethno medicinal and nutritious values [12, 13]. Phytochemical components of *Z. officinale* contain a number of potentially bioactive substances, mainly gingerols and their related dehydration products, the shogaols, as well as volatile oils including sesquiterpenes, such as beta bisabolene, mainly geraniol, and nerol. It has shown that the main constituents of ginger are Gingerol and Shogaol, Zingerone and Paradol. It was reported that 6-gingerol and 6-shogaol are the major gingerol and shogaol present in the rhizome [14].

Mechanism that contribute to the formation of free radicals in diabetes could embody metabolic stress ensuing from changes in energy metabolism, inflammatory mediators and impaired inhibitors defense mechanism [15, 16]. This study also concluded that ginger lowers diabetes with no significant side effects. In those studies, the patient took ginger tea daily for 3-4 weeks and the analysis showed that ginger caused significant decreases in levels of high glucose

## Results and Discussion

### Description of the demographic variables

**Table 1:** Comparison of pre-test and post-test level of blood glucose among patients with diabetes above 40yrs in the experimental and control group. N = 30

Group	Blood Glucose	Mean	S.D	Paired ‘t’ test Value
Experimental	Pretest	165.70	19.54	t = 22.073 p = 0.0001 S***
	Post Test	127.67	14.55	
Control	Pretest	167.73	18.40	t = 1.929 p = 0.064 N.S
	Post Test	166.97	18.37	

\*\*\* $p < 0.001$ , S – Significant, N.S – Not Significant

The pretest mean score of blood glucose in the experimental group was 165.70 with standard deviation 19.54 and the post test mean score of was 127.67 with standard deviation 14.55. The calculated paired ‘t’ test value of  $t = 22.073$  was found to be statistically significant at  $p < 0.001$  level.

It was found that there was significant improvement in the level of blood glucose which clearly infers that ginger tea on blood glucose level was found to be effective in reducing the level of blood glucose among patients with diabetes above 40 yrs in the experimental group [20, 21].

### Conclusion

The results of the present study revealed that there was significant improvement in the post test level of blood glucose in the experimental group which clearly infers that ginger tea on blood glucose level was found to be effective in reducing the level of level of blood glucose among patients with diabetes aged above 40 yrs in the experimental group than the control group [22, 23].

### Acknowledgement

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level. The results gotten by the ginger supplements were even good as those drug achieved by drugs [17].

### Methods and Material

The quantitative approach with quasi experimental research design was used in this study. The population of the study included a all adult above 40yr who were lived in Tirunelveli (Kadayanallur). The under study patients were diagnosed with type 2 diabetes mellitus by an clinical check up with FBS using a glucometer and met criteria of the study. These criteria included diabetic clients who were in the age group of above 40 yrs, client with FBS more than 126mg/dl; excluded are type 2 DM clients who had any other co morbidities like hypertension, cardio vascular diseases, etc, [18, 19] who were on insulin treatment, gestational DM, clients on anticoagulation and anti hypertensives. The samples size is 60; 30 for experimental group; another 30 is for control group in this study. Experimental group clients consume a 2mg/day ginger root in the form of ginger tea. Instead of tea or coffee client should drink a 300ml of ginger tea each day for 21 days. All clients were permitted to consume their usual medications according to their physicians.

### Conflict of Interest

Author declare no conflict of interest

### Finding Support

None

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