

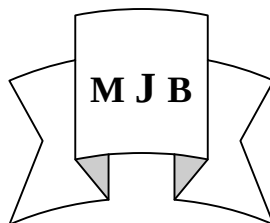
The Effect of *Cinnamomum Verum* on Serum Glucose, GOT, GPT and Creatinine in Patients With Type-2 Diabetes Mellitus

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Abstract

The possible effect of *Cinnamomum verum* on blood glucose was studied in patients with type-2 diabetes. Its effects on hepatic and renal function, and presence of other side effects were evaluated. Fasting blood glucose and serum GOT, GPT and creatinine levels were measured. The results shown that *Cinnamomum verum* produce significant decrease in serum glucose levels ($P < 0.05$), while there was non significant changes ($P > 0.05$) in serum GOT, GPT and creatinine levels. There was no mentioned side effect except gastric burning in one patient only.

الخلاصة

تم دراسة التأثير المحتمل لنبات الدارسين على مستوى سكر الدم في المرضى المصابين بداء السكر من النوع الثاني غير المعتمد على الأنسولين. وكذلك تقييم تأثير هذا النبات على وظائف الكبد والكلية واحتمال وجود الأضرار الجانبية. لقد تم قياس مستوى سكر الدم الصائم وأنزيمات الـ GOT و GPT والكرياتينين في مصل الدم. أظهرت النتائج إن نبات الدارسين أحدث انخفاضاً معنوياً ($P < 0.05$) في مستوى سكر الدم. بينما لم يحدث تغييراً معنوياً في مستوى الـ GOT و GPT والكرياتينين ($P > 0.05$). وقد لوحظ عدم وجود تأثير جانبي يذكر عدا حرقة في المعدة في مريض واحد فقط.

Introduction

The major types of DM are type-1 and type-2 diabetes. In both types there is a genetic predisposition as well as environmental factors that contribute to the expression of the genetic predisposition [1].

Type-2 or NIDDM is the most common form of diabetes, accounting for 85-90% of the diabetic population [2], it is characterized by 2 pathogenic defect,

impaired insulin secretion and insulin resistance [3] and the marked compensatory increase in insulin secretion necessary to maintain normal glucose tolerance cannot be achieved or maintained [1].

Dietary measures are required in the treatment of all diabetic patients to achieve the overall therapeutic goal [4], and in many cases the deletion of fat stores and the resultant weight loss is

sufficient to relieve the NIDDM, but in those whom dietary control is ineffective an alternative therapy is necessary [5].

Before the discovery of insulin in the early 1920s and later the development of oral hypoglycemic agents, patients with non-insulin requiring diabetes have been treated orally in folk medicine with a variety of plant extracts. The major form of treatment of DM involved dietary manipulation and the use of plant therapies. The present study aimed to evaluate the possible hypoglycemic effect of *Cinnamomum verum* on blood glucose levels and its effect on hepatic and renal functions.

Patients and Methods

Ten males patients with age mean about 54.14 complaining of type-2 DM admitted to Al-Kadhimyia teaching hospital in Baghdad city, during the period between October 2002 and February 2003, were involved in this prospective study.

The patients were given the powder of *Cinnamomum verum* in a dose of 1g twice daily in capsules for six weeks.

The blood samples were taken before treatment and every two weeks throughout the treatment.

Fasting serum glucose was determined by glucose oxidase method using BIOLABO kit [6]. GOT and GPT were determined colorimetrically using Biomaghreb kit[7]. Creatinine was determined by a kinetic test without deproteinization method using Biomaghreb kit [8].

Results

The results of this study revealed that the treatment with *Cinnamomum verum* produce a significant decrease in fasting serum glucose levels throughout the six weeks of treatment ($P < 0.05$). The results

also shown that there were non significant changes in serum GOT, GPT and creatinine in diabetic patient throughout the period of treatment ($P > 0.05$).

Discussion

For a long time people drinking cinnamon tea as habitual habit, and the treatment with this plant was very acceptable from the diabetic patients.

The results of this study revealed that the levels of serum glucose in the diabetic patients were higher than the normal range, and the treatment with *Cinnamomum verum* produced a significant reduction in serum glucose levels throughout the six weeks of treatment (table1, figure 1).

Previous study found that when diabetic mice were given an extract from cinnamon called methylhydroxy chalcone polymer (MHCP), the abnormally high glucose concentration dropped. They believe that MHCP may delay or even prevent the non-insulin dependent version of the disease [9].

The results also shown that the serum levels of GOT, GPT and creatinine in all diabetic patients were within the normal ranges before the treatment with *Cinnamomum verum*, and there were non-significant changes in their levels throughout the six weeks of the treatment. This mean that *Cinnamomum verum* has no clinical evidence of hepatic and renal dysfunction.

The treatment with *Cinnamomum verum* decreased the numbness in the feet and paraesthesiae in the hands and feet with no side effects except gastric burning. Edwards *et al.* mentioned that these symptoms are neuropathological complications of hyperglycemia [4], therefor their decreasing confirm the improvement of blood glucose levels.

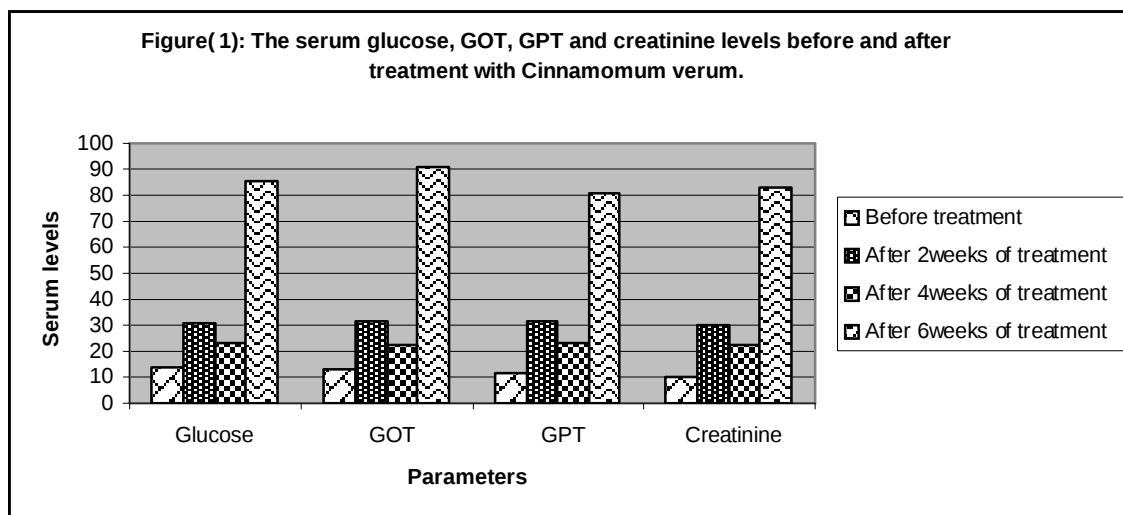
The only side effect that studied by De-Benito and Alzaga, [10] was the occupational allergic dermatitis from cassia (chinese cinnamon) when used as a flavoring agent in coffee.

References

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Table 1 fasting blood glucose and serum GOT, GPT and creatinine levels before and throughout the six weeks of treatment with *Cinnamomum verum* in type-2 diabetic patients.

Reference value	Serum level	Before treatment	After 2weeks of treatment	After 4weeks of treatment	After 6weeks of treatment
Fasting blood glucose	4 - 6.1 mmol/ml	12.41**	12.01**	11.17**	10.23**
SGOT	< 40U/ml	35.8*	34.8*	35.5*	35.7*
SGPT	< 45 U/ml	24.6*	23.7*	24.15*	23.72*
S.creatnine	61.8–132.6 μ mol/ml	75.33*	80.42*	79.23*	76.3*



**= significant differences $P < 0.05$.

*= non significant differences $P > 0.05$