

Full Length Research Paper

Anti-diabetic activity of aqueous root extract of *Anacyclus pyrethrum* L. In streptozotocin-induced-diabetic rats

Chaouki Selles¹, Houria Medjdoub², Mohamed El Amine Dib^{1*}, Meriem Zerriouh¹ and Boufeldja Tabti¹

¹Laboratoire des Substances Naturelles et Bioactives (LASNABIO) Département de Chimie, Faculté des Sciences, Université Aboubekr Belkaïd BP 119, Tlemcen 13000, Algérie.

²Département de biologie, Faculté des sciences de la nature et de la vie, Université de Mascara., Algérie.

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The present work is to study for the first time the anti-diabetic properties of aqueous extract of roots of *Anacyclus pyrethrum* L. in normal and streptozotocin (STZ)-induced diabetic rats and to achieve a primary pharmacological screening contained in the aqueous extract. A total of 20 rats including 10 diabetics and 10 normal rats were used for this study. The anti-diabetic activity of aqueous extract of roots was evaluated by using normal and STZ induced diabetic rats at a dose of 250 mg/kg *p.o* daily for 21 days. Blood glucose levels were measured using GOD-POD. Screening for major classes of phytochemical was done using standard chemical tests. Per oral administration of the aqueous extract of the roots (250 mg/kg body weight) to streptozotocin-induced diabetic rats exhibited a significant antihyperglycemic activity in STZ-induced diabetic rats, whereas in normal rats no hypoglycemic activity was observed. Phytochemical screening showed a wealth in compounds: Tannins, saponins, alkaloids, amino acids, steroids and terpenoids. Aqueous extract of roots exhibit attractive properties and can therefore, be considered a promising candidate for future application as alternative therapeutic agents, particularly in the development of anti-diabetic drugs.

Key words: *Anacyclus pyrethrum* L, anti-diabetic activity, streptozotocin, aqueous root extract, photochemical screening.

INTRODUCTION

Diabetes is one of the most prevalent chronic diseases in the world, it is characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Considerable attention has been placed on understanding the pathophysiology of diabetes mellitus because of its importance in human health. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels (American Diabetes Association, 2008). Current treatment includes insulin therapy, although this provides

good glycemic control, it can do little to prevent secondary complications. Besides, these drugs are associated with side-effects or diminution in response after prolonged use (Mahadeva and Subramanian, 2009). Moreover, providing modern medical healthcare across the world is still a far-off goal due to economic constraints. Thus, it is necessary that we continue to look for new and, if possible, more efficacious drugs, and the vast reserves of phytotherapy may be an ideal target (Mahadeva and Subramanian, 2009). Plants have played a significant role in maintaining human health and improving quality of life for thousands of years. In particular, herbs have been used as food and for medicinal purposes for centuries. The use of medicinal plants is increasing because of their widespread use and for their curative effects on various diseases (Bhavsar et

*Corresponding author. E-mail: a_dibdz@yahoo.fr. Tel/Fax: +213 43286530.