Journal of Microbiology and Biotechnology Research

Scholars Research Library

J. Microbiol. Biotech. Res., 2013, 3 (2):64-67
(http://scholarsresearchlibrary.com/archive.html)

ISSN : 2231 –3168
CODEN (USA) : JMBRB4

Effect of *Hemidesmus indicus* root extract on the blood glucose level in alloxan induced diabetic rats

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ABSTRACT

In this study, the effect of a single dose of Hemidesmus indicus root extract (HiRe) on the blood glucose level in alloxan (150mg/kg b.w, ip) induced diabetic rates was evaluated. Blood was collected from the tail vein in rats at zero time and after drug administration in 1st, 2nd and 4th hour and 24 hour to examine the effect. HiRe at 250 and 1000mg / kg was used for the study. Glibenclamide (3mg / kg, p.o) was used as the standard drug. The study clearly showed that single dose of HiRe had significantly protected the glucose level in alloxan induced diabetic rates at 1st, 2nd and 4th hour and even after 24hr, with respect to that of control animals. The results of the study reveal that HiRe possess significant antidiabetic activity in single dose study, suggesting the potential role of this plant as antidiabetic drug. The effect was partly ascribed to the free radical scavenging activity of HiRe. Thus, we conclude that Hemidesmus indicus possesses profound beneficial effects in preventing diabetic related abnormalities by lowering the sugar level as normal.

Key words: Diabetics mellitus; *Hemidesmus indicus*; antioxidants; alloxan.

INTRODUCTION

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia and alterations in carbohydrate, fat, and protein metabolism. The condition is associated with several complications such as atherosclerosis, neuropathy, and cataract formation [1].Diabetes is currently growing at a rapid rate throughout the world, and it is the 16th leading cause of global mortality [2].

In recent years, because many current oral hypoglycemic agents are synthetic drugs with certain adverse side effects, interest in alternative therapeutic approaches has become very popular [3]. For several thousands of years, the plant kingdom has been a source of a wide variety of potentially beneficial natural effective oral hypoglycemic agents that have lower toxicity and fewer side effects compared to synthetic drugs [4].

Hemidesmus indicus Linn. belongs to the family (Apocynaceae) [5], commonly referred to as Indian sarsaparilla, Anantamool or Nannari is a commonly available perennial climbing plant, used as the main ingredient in the preparation of the cool and refreshing drink Nannari sherbat. It is a native of India and also found in south tropical Asian countries such as Pakistan and Sri Lanka [6]. *Hemidesmus indicus* is a well known medicinal plant used for antioxidant and anti-inflammatory diseases [7].Tribal people used this plant to treat the cancers of abdomen and skin. The root decoctions of *Hemidesmus indicus* R.Br. was tested on hepatoma HepG2 and EAT cells. [8,9]. The plant is used in traditional medicine in biliousness, respiratory disorders, eye diseases, epileptic fits in children, kidney and urinary disorders, loss of appetite and burning sensation [10,11]. This prompted us to evaluate the effect of single dose of *Hemidesmus indicus* on the blood glucose level in allxoan induced diabetic rats.