

DIURETIC ACTIVITY OF *PISTIA STRATIOTES* LEAF EXTRACT IN RATS

Tripathi Pallavi^{1*}, Arora Sandeep¹, Gupta Rajiv¹, Mali Prabha R²

¹Babu Banarasi Das National Institute of Technology & Management, Lucknow, U.P, India

²Dr. D.Y.Patil Institute of Pharmacy, Akurdi, Pune, India

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*Pallavi Tripathi, Email- madhuri_tripathi@yahoo.co.in

ABSTRACT

The leaf extracts of *Pistia stratiotes* were subjected to screening of antidiabetic and diuretic activity in rats. The oral administration of the extracts (200mg/kg body weight) produced significant antihyperglycemic ($P < 0.001$) action, as well as Diuretic action. The antihyperglycemic action of the extracts may be due to the blocking of glucose absorption. From the obtained result it was concluded that *Pistia stratiotes* possess potent antidiabetic and diuretic activity.

KEYWORDS: Antidiabetic, Antihyperglycemic, Diuretic, *Pistia stratiotes*

INTRODUCTION

Diabetes mellitus has affected a considerable population and in future it will be a major disorder affecting people across the globe, irrespective of sex, age and socio-economic status. Insulin has proved to be effective to some extent in increasing the life expectancy of diabetic patients, but is not a permanent solution since there are many drawbacks of this therapy. Also the therapy with oral hypoglycemic agents is not satisfactory. Thus, the search for new therapeutic agents devoid of adverse effect, originating from plants used in traditional medicine would be of interest.

Pistia stratiotes (Araceae), Syn. watercabbage, Jalkumbhi is an aquatic plant, stoloniferous, floating on lakes, streams, stagnant waterponds and in lime rich water, throughout India. It is distributed in the tropical and subtropical region of Asia, Africa and America¹. A number of medicinal properties are attributed to the plant, particularly the leaves. The plant is considered antiseptic, antitubercular and antidysentric. An analysis of leaves and stems reported moisture (92.9%), Protein (1.4%), fat (0.3%), Carbohydrate(2.6%), fibre (0.9%), Ash(1.9%),CaO (0.2%), leaves are rich in Vitamin A,C and also contain Vitamin B². Leaves are found to contain 2-di-C-glucosylflavones of vicianin and lucenin type, anthocyanin-cynidin-3-glucosylflavones-vitexin and orientin³. In Ayurveda *Pistia stratiotes* has been acknowledged to treat various diseases and disorders, hence, this study is planned to establish scientific data on the validity of the claimed therapeutic value.

MATERIALS AND METHOD

Plant material: The leaves of *Pistia stratiotes*, collected from local supplier of Lucknow, India and authenticated from, Taxonomical Division National Botanical Research Institute, Lucknow, while voucher (sample No. N.B.R.I/CIF/Re/ 08/2008/32) was deposited in taxonomy lab, Ethnopharmacology division, NBRI, Lucknow for future reference.

Preparation of Extract: A definite weight of crude drug powder was taken in a soxhlet apparatus after making moderately coarse and then continuous hot soxhlet extraction was done by various solvent in a sequence of increasing polarity as follows: Chloroform<Methanol. The leaves of the plant were washed with distilled water, dried & comminuted to powder form,(60 mesh) before starting extraction with subsequent solvent, the powder was dried of all its previous solvent content by spreading out on paper. The extract was then concentrated in Buchi Rota evaporator.

Animals: Healthy male Wistar rats each weighing 150-200 g were used for study. The rats were housed in polypropylene cages and maintained under standard conditions (12 h light and dark cycles, at $25 \pm 3^{\circ}\text{C}$ and 56-60% humidity). Standard palletized feed and tap water were provided *ad libitum*. The study was conducted with due approved from the Institutional Animal Ethics Committee (IAEC) and confirms to the guidelines for use & care of Animals laid down by Committee for Purpose of Control supervision on experimental Animals (CPCSEA) no. BBDNITM/IAEC/ clear/09/2008.