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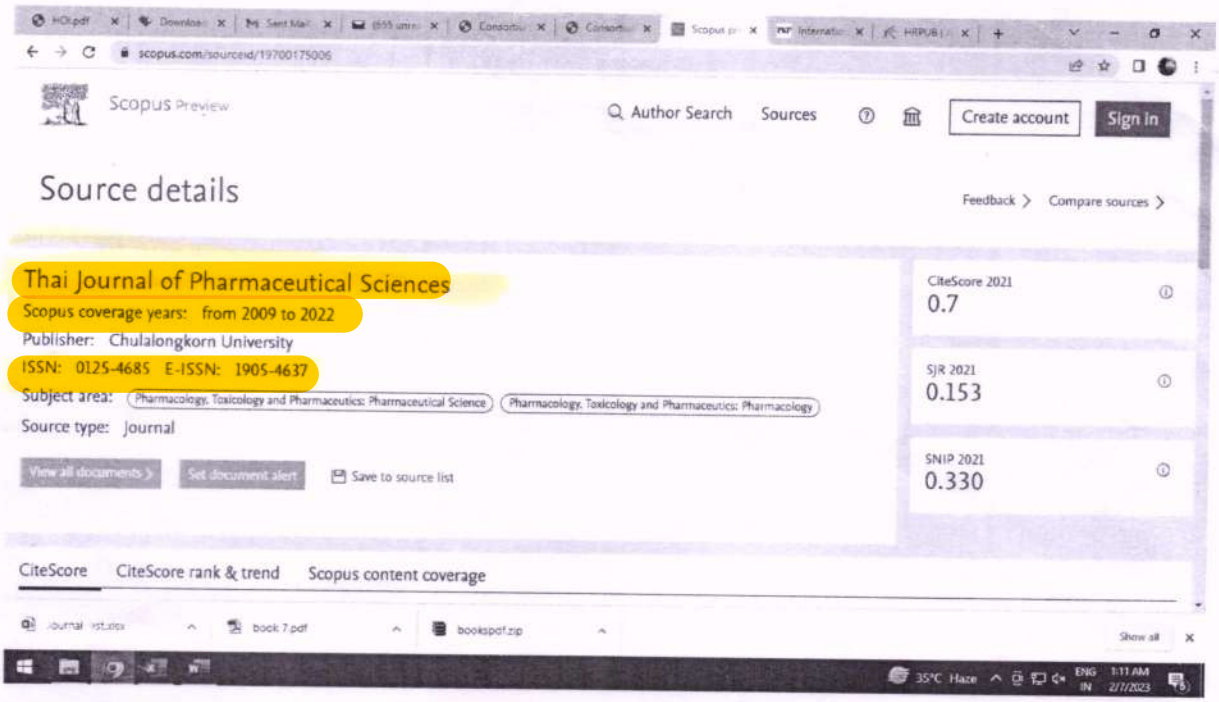

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Original Article

Thai Journal of Pharmaceutical Sciences

Gastroprotective effect of *Phyllanthus reticulatus* Poir. against pylorus ligation-, ethanol-induced, and stress-induced ulcer models in Wistar rats

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ABSTRACT

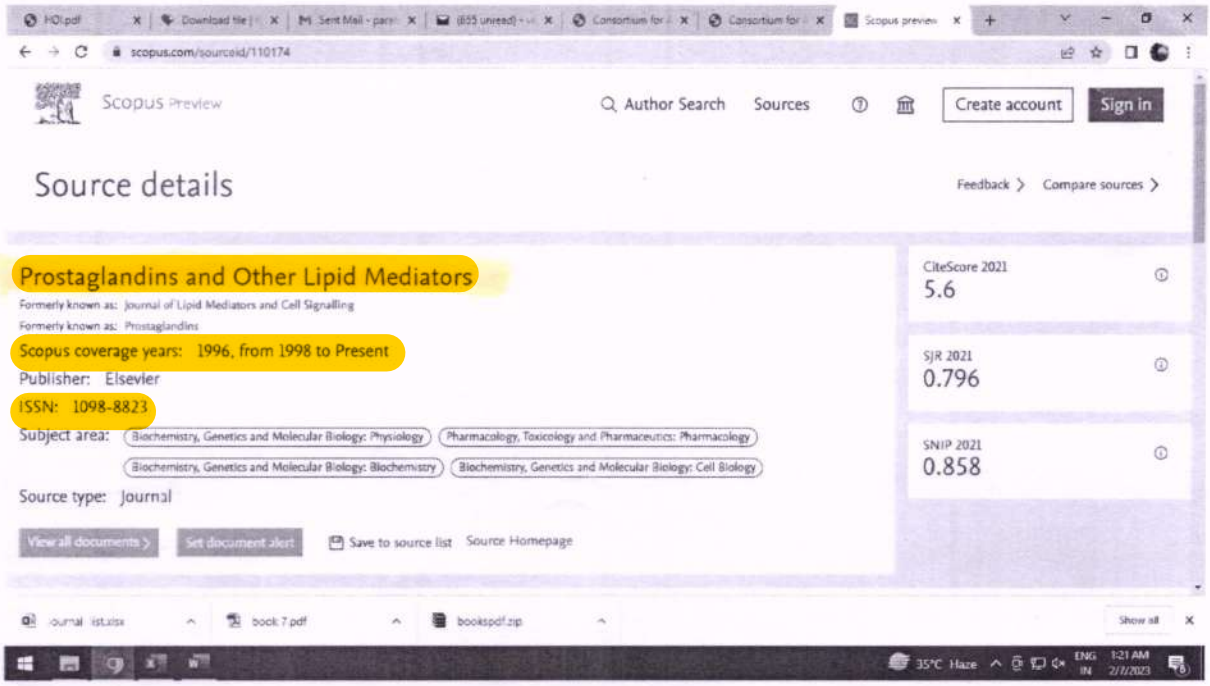
Objective: The objective of the present study is to evaluate the antiulcer property of ethanolic extract of *Phyllanthus reticulatus* Poir. against pylorus ligation-, ethanol-induced, and stress-induced ulcer models in Wistar albino rats. **Materials and Methods:** Three models – pylorus ligation-induced ulcer, ethanol-induced ulcer, and swim stress-induced ulcer – were used to induce ulcer in Wistar rats. The animals were treated with 200 mg/kg and 400 mg/kg p. o of the ethanolic extract of *P. reticulatus* Poir, to estimate the gastroprotective potential. The effect of *P. reticulatus* Poir. on pH of the gastric juice, volume of acid secretion, total and free acidity, ulcer index, and % ulcer protection was assessed to determine the gastroprotective potential. **Results:** A decrease in ulcer index was observed in all three models after treatment with *P. reticulatus* Poir. In pylorus ligation model, the doses of 200 mg/kg and 400 mg/kg exhibited % protection of 88.11 and 91.53, respectively. In ethanol-induced ulcer model, 200 mg/kg and 400 mg/kg displayed % protection of 50.40 and 60.94, respectively. In stress-induced ulcer model, 200 mg/kg and 400 mg/kg displayed % protection of 60.94 and 72.31, respectively. A decrease in aggressive factors and an increase in protective factors were observed during the estimation of biochemical parameters. **Conclusion:** The present study proves that the ethanolic extract of *P. reticulatus* Poir. possesses significant gastroprotective property.

Keywords: Gastric ulcer, gastroprotective, *Phyllanthus reticulatus* Poir., pylorus ligation

INTRODUCTION

The World Health Organization estimates that 80% of human population must depend on plant-based traditional medicines for health care.[1] Phytoconstituents derived from botanicals have been found to be effective in major ailments and are less toxic compared to existing drugs. An imbalance between aggressive and defensive factors of gastric mucosa leads to pathogenesis of ulcer.[2] Chronic stress, consumption of alcohol and tobacco, nonsteroidal anti-inflammatory drugs, and *Helicobacter pylori* are considered to be the major factors that act as aggressive factors in the pathogenesis of gastric ulcer. There is a need to discover newer antiulcer drugs to avoid the potential problem associated with the long-term use of synthetic proton-pump inhibitors.[3]

Phyllanthus reticulatus Poir. is a shrub with smooth or lenticellate branches reaching a maximum height of 10 feet that belongs to the family Euphorbiaceae. The leaves of the plants are traditionally used as diabetic and have also been reported to possess diuretic, astringent, and astringent properties. The leaf extract of *P. reticulatus* Poir. has been reported to possess antimicrobial properties against Gram-negative bacteria and the whole plant extract has been reported to have antioxidant property.[4,5] The major phytoconstituents reported to be present in the leaves of *P. reticulatus* Poir. are lupeol, stigmasterol, scopoletin, friedelin, epifriedelinol, betulin, taraxerone, beta-sitosterol, glochidonol, octacosanol, methyl gallate, ellagic acid, corilagin, methyl brevifolin carboxylate, kaempferol, astragalin, quercetin, and isoquercitin.[5] *P. reticulatus* Poir. has been reported to be effective against Gram-negative bacteria such



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Review

Understanding the possible role of endocannabinoid system in obesity

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Endocannabinoid system
Adipocyte
High fat diet
CB1 receptor
CB2 receptor

ABSTRACT

Background: Maintenance of weight is essential for sustenance, well-being and to endorse prolonged life. The prevalence of obesity is increasing at an alarming rate globally, due to modern lifestyle and dietary habits. Endocannabinoids are fatty acid derivatives and numerous studies are carried out which focuses and targets their relationship with obesity, via multiple signals which have been recently known for exerting crucial role in regulating energy balance.

Purpose: This article aims at examining the prospects of endocannabinoids in obesity via directing the role of ECs in stimulating hunger.

Result: In last few years, irregular stimulation of endocannabinoid system has been suggested as a chief element in the progression of obesity-associated metabolic complications. Certainly, this cascade system comprises of cannabinoid type1 and 2 receptors (CB1R and CB2R) along with their endogenous lipid ligands which are responsible for enhanced feeding behavior as well as lipid metabolism. Significantly, inhibiting CB1R activity might reduce metabolic abnormality linked with obesity.

Conclusion: Conclusion withdrawn on the basis of supporting scientific data and evidences report that the blockade of cannabinoids can serve as a therapeutic potential for treatment of obesity. Future prospective aims at assessing molecular pathways which contributes towards ECS, elicited weight control and to evaluate how these mechanisms are presently relocated into the production of novel cannabinoid drugs exhibiting enriched care.

1. Introduction

Obesity is a multifaceted metabolic syndrome, accompanied by impaired energy homeostasis, irregular expansion of adipose tissue, and endocrine hormonal dysfunction. Obesity has turned into an epidemic, and is affecting population in developed as well as developing countries [1]. The prevalence of obesity is increasing at an alarming rate and can lead to detrimental effects. The latest data tells that annual expenditure on treatment of obesity in USA is $211 US billion [2]. Globally, about 2 billion individuals are affected with elevated body weight, and about 641 million people are obese [3]. The prevalence of obesity is consistently accelerating occurrence around the world. Prevailing evidence reveals that progenies that are overweighed are more susceptible to obesity [4]. As of now various regimens and drugs organizes the primary treatment of obesity. Presently, Orlistat is used for obesity in kids and adults [5]. FDA has approved numerous medications for the treatment of obesity. Lorcaserin and liraglutide exerts their pharmacological action through a common mechanism. Orlistat inversely blocks the pancreatic lipases, elevating dietary fat elimination [6,7]. On account of its common and widespread existence, obesity is associated with increased incidence of several diseases i.e. cardiovascular disorders and diabetes mellitus [8], posing a threat to the human race. In certain cases, lifestyle modifications and physical exercise have been recognized to exert potential benefits in evading obesity.

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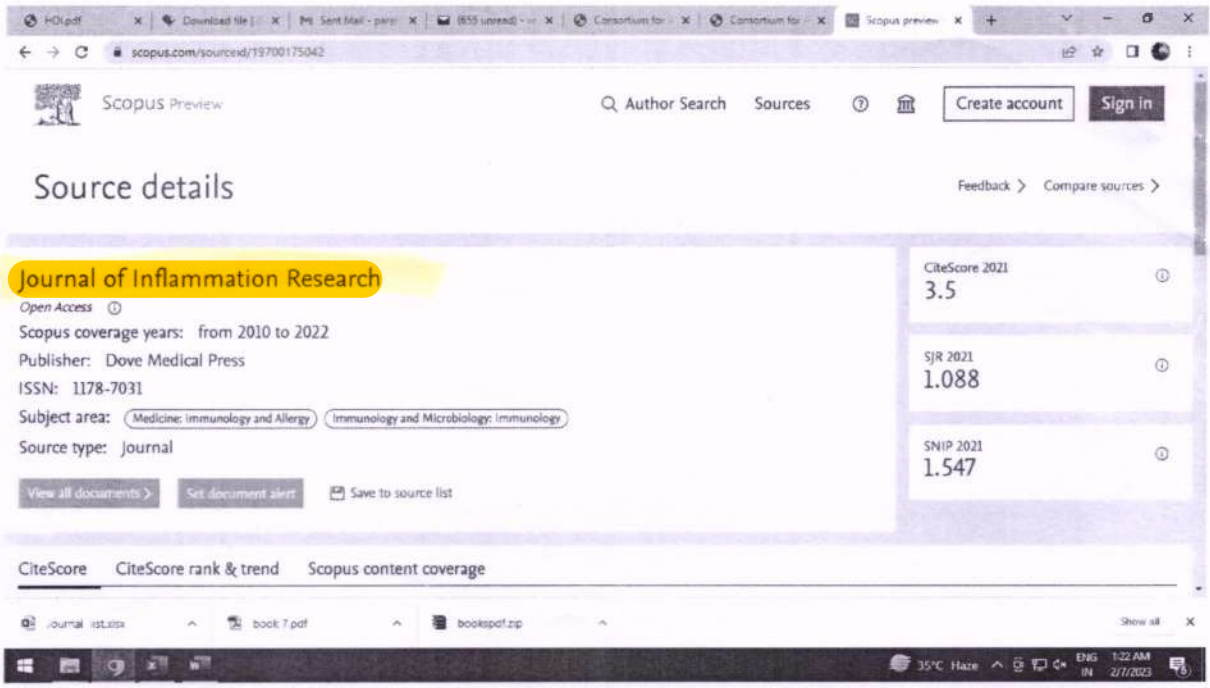

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REVIEW

Focus on the Multimodal Role of Autophagy in Rheumatoid Arthritis

Swati Chadha,[1] Tapan Behl,[1,4] Simona Bungau,[2,4] Arun Kumar,[1] Rajwinder Kaur,[1] Thangaval Venkatachalam,[3] Amit Gupta,[1] Mimansa Kandhwal,[1] and Deepak Chandel[1]

Received 11 July 2020; accepted 17 August 2020

Abstract— Autophagy exerts its dual role in eukaryotic cells and exerts its cytoprotective action through degradation mechanism and by regulating catabolic processes which results in elimination of pathogens. Under suitable conditions, autophagy is associated with recycling of cytoplasmic components which causes regeneration of energy whereas deregulated autophagy exerts its implicated role in development and pathogenesis of auto-immune diseases such as rheumatoid arthritis. The immune, innate, and adaptive responses are regulated through the development, proliferation, and growth of lymphocytes. Such innate and adaptive responses can act as mediator of arthritis; along with this, stimulation of osteoclast-mediated bone resorption takes place *via* transferring citrullinated peptides towards MHC (major histocompatibility complex) compartments, thereby resulting in degradation of bone. Processes such as apoptosis resistance are also regulated through autophagy. In this review, the current knowledge based on role of autophagy in pathogenesis of rheumatoid arthritis is summarized along with proteins associated.

KEY WORDS: auto-immune; autophagy; rheumatoid arthritis; immune response.

INTRODUCTION

Autophagy can be defined as a degradation pathway which can be characterized *via* isolating the specific cytoplasmic material in a double membrane vesicle termed as autophagic vacuole (autophagosome), followed *via* the fusion of autophagic vesicle with that of lysosome which ensures destruction of organelles as well as misfolded proteins, further carried inside vesicles [1]. Autophagy can be defined as a physiological process which is required for the degradation of proteins and is restricted towards tissue. It can be considered as a physiological process which is involved in turning over of basal organelles and is required for removing the protein aggregates [2]. The process of autophagy is considered as cellular housekeeping pathway, pro-survival mechanism which exerts its major action of removing or eliminating damaged organelles and aggregates of proteins [3, 4]. Along with the removal of aggregated proteins, it serves and provides energy that is employed for synthesizing macromolecules as in case of starvation and during excessive oxidative stress. Thus, it can lead to recycling of intracellular

Swati Chadha, Tapan Behl, Simona Bungau and Rajwinder Kaur contributed equally to this work.

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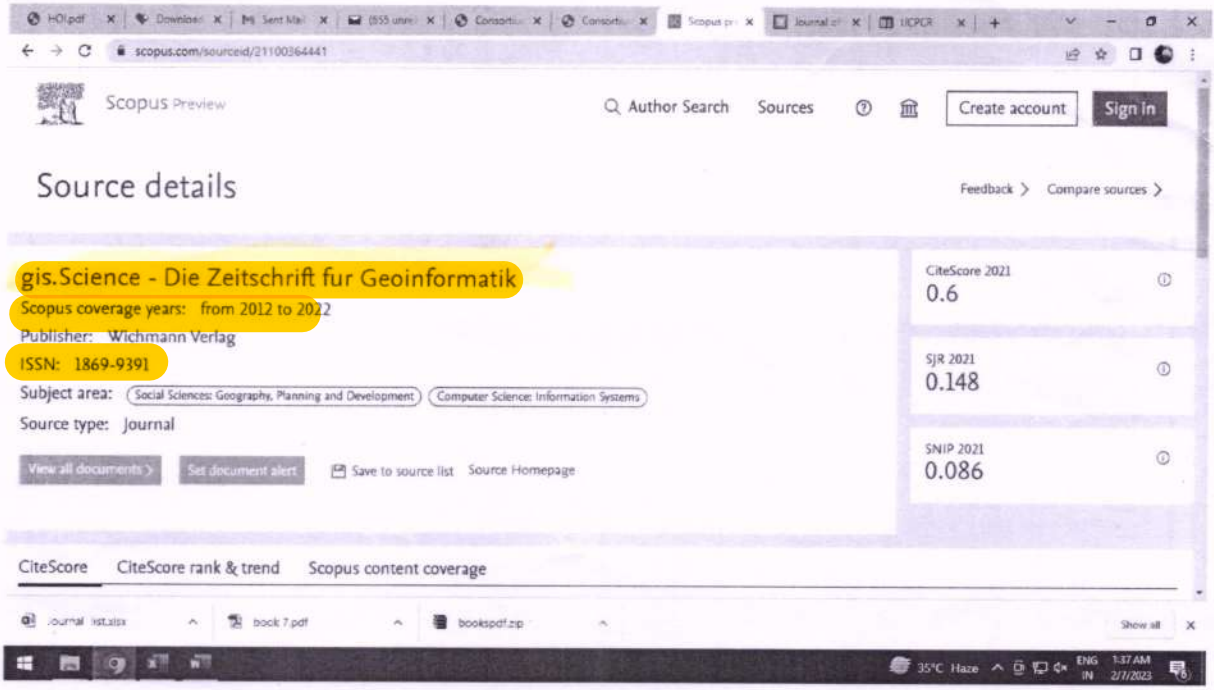

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Assessing the prevalence of respiratory symptoms and quality of life among textile mill workers - Namakkal district, Tamil nadu

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Abstract:

The prevalence of occupational lung disease among workers in various textile mills is a significant problem. Long-term exposure to cotton dust can cause an abnormally large annual loss of forced expiratory volume in one second (FEV1) and a higher proportion of people with persistent respiratory problems. People exposed to cotton dust also reported airway allergies and a positive skin reaction. The objective of the study is to assess the prevalence of respiratory symptoms among textile mill workers in ,Namakkal district -Tamil Nadu. 400 workers were included in this study . Prevalence monitoring data was collected via pre-tested and structured interviewer-administered questionnaire adopted from the American Thoracic Society division of lung disease and quality of life was assessed through Rand 36 questionnaire. The study shows nearly 91.9% of the subjects had respiratory complaints . Majority of the workers experienced breathlessness and cough. Age, educational status, experience, smoking, alcohol habits and usage of mask were significantly associated with the respiratory symptoms. Workers who were between age 18-30, educated above secondary, with experience ≤5, working in weaving section , who were without respiratory symptoms and using mask experience better quality of life. This study concluded that the level of respiratory symptoms in the textile mill workers was relatively high. Educating the workers about the consequence of cotton dust exposure, encourage the use of masks and the provision of personal protective equipments (mask) are the important task to be followed to reduce respiratory symptoms in textile mills.

Key words:

Textile mills, Cotton dust ,Respiratory symptoms, Personal protective eqipments , Quality of life

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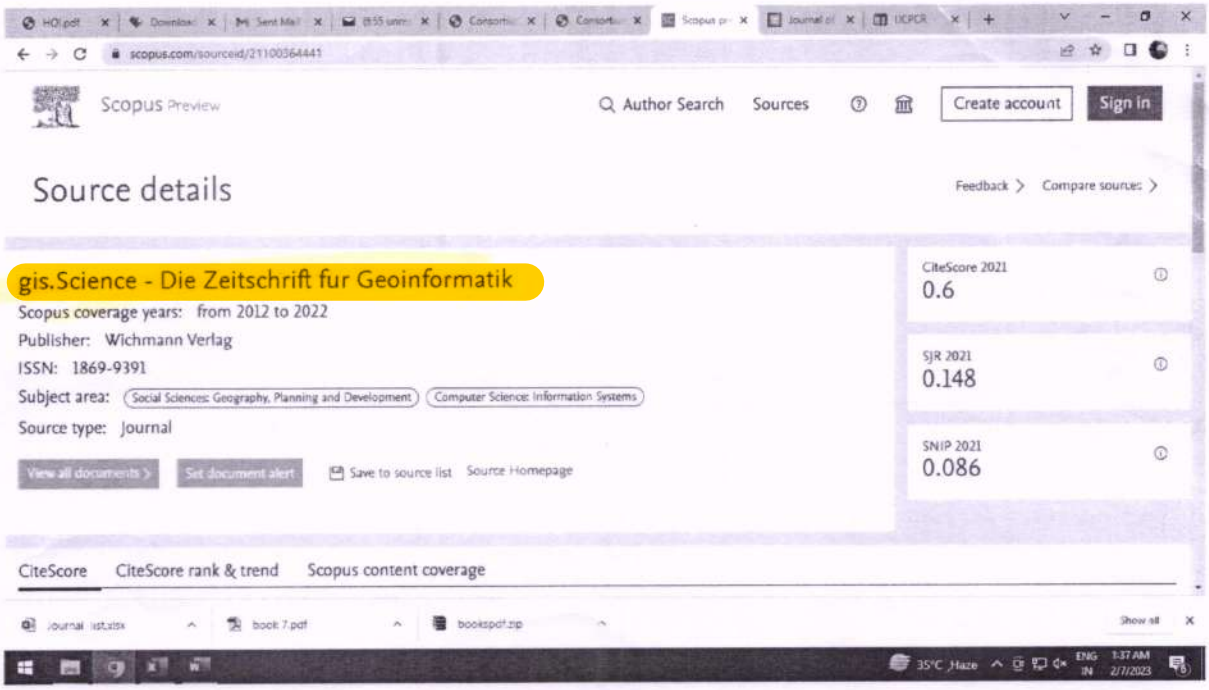

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23

Prevalence and assessment of Self Medication practice along with associated factors among the population of Namakkal District

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Abstract :

Background and objectives :In India self medication is an common practice of treating minor ailments. This study was aimed to determine the Prevalence and assessment of self medication practice along with associated factors among the population of Namakkal district. This study also determines the perception and attitude towards practice of self medication. **Materials and methods:** A cross sectional study design was conducted to describe the prevalence and assessment of self medication practice among the population and the relationship between the self medication related variables and demographic variables. **Results:** Among 852 participants, 633 participants were practiced self- medication and 219 participants never practiced self-medication. study shows, that 37.4% of male and 62.2% of female and 0.3% of transgender participants practice self-medication. Shows that majority of them were literate 93.5% and 6.5% were illiterate. 21% were 12^{th} and below, 46.4% were UG level, 24.6% were PG level and 1.6% were PHD level. 32.7% were reported know about the medicine by consult a pharmacist. study shows there is a significant association between the ailments and gender and there is a significant association between ailments and education status. **Conclusion**: Irrational use of medicine is due to lack of knowledge about the complications that can occur by practicing self medication without proper diagnosis, this indicates the need for an educational campaign on necessity of proper medication use among the public.

Keywords : selfmedication, prevalence, ailments, namakkal, Irrational use

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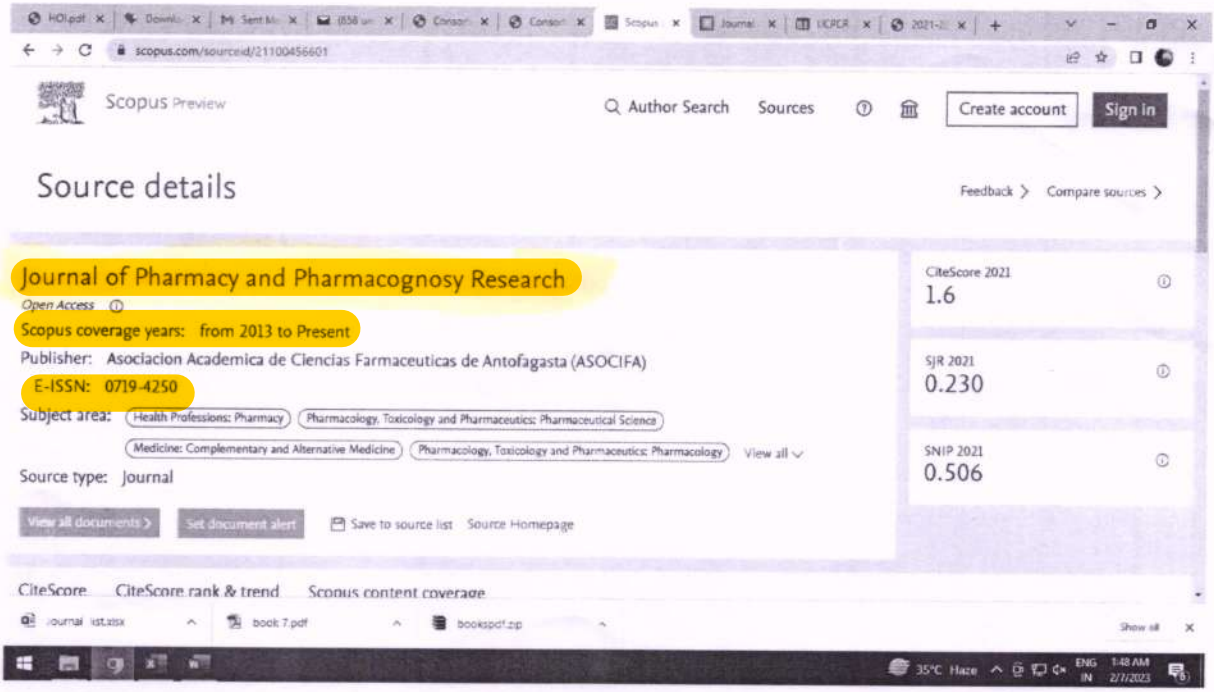

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Original Article

Anti-hyperglycemic and hypolipidemic effects of *Saraca asoca* (Roxb.) Wild. flowers in alloxan-treated diabetic rats

[Efectos antihiperglucémicos e hipolipidémicos de flores de *Saraca asoca* (Roxb.) Wild. en ratas diabéticas tratadas con aloxano]

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Abstract

Context: *Saraca asoca* (*Leguminosae*) has been widely used in the Ayurvedic system of medicine for various ailments, and it has been used to treat diabetes as a folk medicine.

Aims: To investigate the anti-hyperglycemic and anti-hyperlipidemic effect of ethanolic extracts of *S. asoca* (EESA) flowers in alloxan-induced diabetic rats.

Methods: The anti-hyperglycemic activity of EESA was evaluated by using normal and alloxan-induced (120 mg/kg, i.p.) diabetic rats. In the sub-chronic animal model of diabetes mellitus, EESA was orally administered to normal and alloxan-induced-diabetic rats at doses of 200 and 400 mg/kg p.o. per day for 28 days.

Results: Fasting blood glucose (FBG), insulin, glycated hemoglobin (HbA1c) levels, lipid profiles, alkaline phosphatase (ALP), and body weights were monitored at the end of 28 days in the EESA treated diabetic rats. The anti-hyperglycemic effect of EESA was more pronounced at the doses of 200 and 400 mg/kg in alloxan-treated diabetic rats as compared with vehicle-treated rats. EESA also showed a significant ($p<0.05$) increase in serum insulin levels and body weights, while there was a significant reduction in the levels of ALP, HbA1c, serum triglyceride and total cholesterol. EESA also showed a significant anti-hyperlipidemic effect, as evidenced by the increased HDL-c level of alloxan-induced diabetic rats.

Conclusions: The results of the current investigation indicate that EESA possesses a significant anti-hyperglycemic effect and anti-hyperlipidemic effect.

Keywords: alloxan; anti-hyperglycemic; diabetes mellitus; hypolipidemic; Oral glucose tolerance test; *Saraca asoca*.

Resumen

Contexto: *Saraca asoca* (*Leguminosae*) se ha utilizado ampliamente en el sistema de medicina ayurvédica para diversas dolencias y para tratar la diabetes como medicina popular.

Objetivos: Investigar el efecto antihiperglucémico y antihiperlipidémico de extractos etanólicos de flores de *S. asoca* (EESA) en ratas diabéticas inducidas por aloxano.

Métodos: Se evaluó la actividad antihiperglucémica de EESA utilizando ratas diabéticas normales e inducidas por aloxano (120 mg/kg, i.p.). En el modelo animal subcrónico de diabetes mellitus se administró EESA por vía oral a ratas normales y con diabetes inducida por aloxano en dosis de 200 y 400 mg/kg p.o. por día durante 28 días.

Resultados: La glucosa en sangre en ayunas (FBG), la insulina, los niveles de hemoglobina glucosilada (HbA1c), los perfiles de lípidos, la fosfatasa alcalina (ALP) y los pesos corporales se controlaron al final de los 28 días en las ratas diabéticas tratadas con EESA. El efecto antihiperglucémico de EESA fue más pronunciado a las dosis de 200 y 400 mg/kg en ratas diabéticas tratadas con aloxano en comparación con ratas tratadas con vehículo. EESA también mostró un aumento significativo ($p<0,05$) en los niveles de insulina sérica y el peso corporal, mientras que hubo una reducción significativa en los niveles de ALP, HbA1c, triglicéridos séricos y colesterol total. EESA también mostró un efecto antihiperlipidémico significativo, como lo demuestra el aumento del nivel de HDL-c de ratas diabéticas inducidas por aloxano.

Conclusiones: Los resultados de la investigación actual indican que EESA posee un efecto antihiperglucémico significativo y un efecto antihiperlipidémico.

Palabras Clave: aloxano; antihiperglucémico; diabetes mellitus; hipolipidémico; prueba tolerancia glucosa oral; *Saraca asoca*.

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