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A Comprehensive Review On Pharmacological Uses Of Different Parts Of The Plant Oenothera Biennis

T. Vinay Kumar, G. Vaishnavi, K. Madhu , B. Aalekhya
Department Of Pharmacology , Nirmala College Of Pharmacy ,Atmakur , Mangalagiri-522503 Andhra Pradesh ,INDIA.
Corresponding Author: vinaykumartheendra@gmail.com

Abstract
GENUS OENOTHERA is known to all from ancient times .it has number of medicinal uses .the plants of this genus are a botanical source of various pharmaceutical active components like flavonoids , triterpenoids ,saponins ,tocopherol ,sterols ,phenolic acids ,alkaloids and biflavanols .this genus has various different species which are used in treatment of inflammatory ,diabetes ,microbial infections ,ulcers ,tumor , aphrodisiac ,kidney and liver problems .

Introduction
Herbal plants are most significantly used in the role of human life .these herbal plants are being used in different fields such as cosmetics , perfumery , nutraceuticals ,beverages ,pharmacology ,and dying industries .actually before the development of these synthetic drugs ,these hybrid plants were mainly used in the treatment of all diseases .which is also used as an alternative therapy oenothera which belongs to the family onagraceae ,it is the largest genus with 145 species of flowering plants .which is mostly available in temperate America and tropic region this genus in commonly recognized as evening primrose family that consists of herbs and sherbs .this plants genus occur in the form of annual ,biennial or perennial herbs with mostly narrow leaves ,which is saucer shape with a colour of white pink family

The plants belong to this oenothera species have a wide range of medicinal properties

Pharmacological activities of Oenothera biennis

Antioxidant activity
Now a day's these antioxidants play a key role in prevention of human diseases .natural radical scavengers are rich in medicinal plant and it is main causative factor of assistance many medicinal plants the capacity of genus oenothera is concerned from mid of 90's .one of its member oenothera biennis is the most important medicinal plant .in yea 1995 ,by using lard as the substrate showed antioxidant property for fist time .the antioxidant power was estimated by the measuring peroxide number of the sample .research showed that methanolic extract of O. biennis exhibited pronounced activity of antioxidant .years later it explored that the water extract of triterpenoids from O .biennis and also it has radical scavenging activity .in year 2006 ,lipophilic triterpenoids esters were present in cold pressed , and identified that evening primrose oil were found to be effective in reducing oxidation stress . the residue which is pressed also has the very high antioxidant property of O .biennis .late in 2009 ,the methanolic extract of the seeds of the O .biennis were found to be possess radical scavenging activity by using DPPH .due to the antioxidant property a research was carried out in 2010 that most common botanical used for anti aging cream .
The radical-scavenging capacity of oil seed cake extract of O .biennis has evaluated against 2,2-azinobis(3-ethylben zothiazoline-6-sulphonic acid) .in alcoholic extract of oil seed cake shows strong antioxidant capacity and roots was found to possess high antioxidant potentials
In 2015, in vivo and ex vivo properties of emulsion of O .biennis that the seed cake extract evaluated using pH meter, corneometer, tewameter, methyl nicotinate model of micro inflammation in human skin .the emulsion of O .biennis has strong anti-inflammatory and antioxidant activity

Fertility enhancing activity
The oil extract of evening primrose by using cold-pressed from O .biennis L. seeds consists of gamma linoleic acid in its seeds which is a potent anti-oxidant which is stated to decrease Prostate glandinsE2 levels which has inhibitory effect on release of gonodatropins like luteinizing hormone and Follicle stimulating hormone. O. biennis L.showed sufficient evidence of fertility enhancing activity.

Anti-diabetic activity
There is rapid increasing diabetes mellitus has become a serious changes in human health all over the world. There are several treatments to control diabetes, but there is no perfect remedy yet. They showed interest towards herbal drugs they may provide better treatment against diabetes by improvising immunity to the body
In 2003, to determine that ethanolic extract from defatted seeds of evening primrose by using rats
O .biennis L., that to control rise blood glucose level. The extract played an imperative role in the suppression of postprandial hyperglycemia.

Anti-inflammatory activity

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It is a herbal therapy those who are suffering from inflammatory diseases
Multiple sclerosis is the most chronic inflammatory disorder .in 2009, the potential therapeutic effect of O .biennis L. on multiple sclerosis patients' .it was found that by taking evening primrose oil has prevented the sclerosis and other inflammatory diseases
It was also found to be effective in ulcerative colitis treatment, crohn's disease and inflammatory bowel disease
The oil extract of evening primrose by cold-pressed from O .biennis L. seeds consists of vital compounds they are tocopherol, long-chain fatty alcohols and sterols. The presence of sterol in oil has some protective effect on some mediators involved in inflammatory damage development.
The aerial part of O .biennis was investigated for their anti inflammatory activity in 2013. It was found that the extract exhibited anti inflammatory activity by inhibiting hyalurodinase and lipoxygenase in concentration dependent manner. The O. biennis extract showed stronger activity towards lip-oxygenase was attributed to its higher oenithein B content

Anti cancer and anti tumor activity

There is an interest gained in using herbal medicines from past 2 years for prevention and treatment for cancer. in 1999 for the first time that evening primrose oil became a nutritional value approaches of mammary gland tumor therapies .later an experiment conducted on female mice that were injected subcutaneous with 5×10^6 sp^6 syngeneic cells that lead to the formation of solid tumor in them within 7-10days .tumor was monitored daily and it was feeded with evening primrose enriched oil in diet daily. Observation of deffated seeds of O. biennis have anti tumor potential and its activity appear selective for bone marrow derived tumor cells
In 2017, a research was conducted on the results of O. biennis to investigate that anti proliferative activity using (MTT)3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide assay. In roots there is a strong oenotheralanoestrol-b activity against prostate, breast, hepatic and leukemia cancer as compared to the mixture of Oenothera nor sterol A oenotheralsterol B

Anti bacterial activity

These bacterial infections are responsible for death each year. In 2009, the methanolic extract of seeds of O.biennis. L showed strong anti bacterial activity against some micro organism i.e. Candida albicans, pseudomonas acrogenous , staphylococcus aureus and Escherichia coli

Thrombolytic activity

In 1998, the dietary supplementation with O. biennis enhances the antithrombotic ability of the endothelial thrombogenecity and lessens

Anti neuropathic activity

O. biennis plays a very important role in patients those who are suffering from chemotherapy induced neuropathy

Phytoconstituents

In genus oenothera there is a presence of very large number of diverse phytoconstituents has been reported. The phytoconstituents include some alkaloids, esters, fatty acids, alcohols, quinines, tocopherol , phenolic acid, flavonoids, tannins, lactones, triterpenoids and fatty acids which are listed in above table Phytoconstituents

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T. Vinay Kumar(H.O.D) Department Of Pharmacology

Conflict of Intrest

No Conflict of Intrest.

Conclusion

The selected plant was reported to having gamma linoleic acid in its seeds which is a potent antioxidant
Oenothera biennis is stated to decrease Prostate glandinsE2 levels which has inhibitory effect on release of gonodatropins like luteinizing hormone and Follicle stimulating hormone
the present study changed into pronounced that the gamma linoleic acid which we've undertaken for look at have showed sufficient capability to reduce the Prostate glandins E2 stages

Reference

[1] Wagner WL, Hoch PC, Raven PH. Revised classification of the onagraceae. Am Soc Plant Taxon 2007; 83: 1-240.
[2] Shahidi F, Amarowicz R, He Y, Wettasinghe M. Antioxidant ac- tivity of phenolic extracts of evening primrose (Oenothera bien-nis): a preliminary study. J Food Lipids 1997; 4: 75-86.

ISSN:0975-3583,0976-2833 VOL12,ISSUE05,2021

[3] Zaugg J, Potterat O, Plescher A, Honermeier B, Hamburger M. Quantitative analysis of anti-inflammatory and radical scavenging triterpenoid esters in evening primrose seeds. J Agr Food Chem 2006; 54: 6623-8.
[4] Peschel W, Dieckmann W, Sonnenschein M, Plescher A. High antioxidant potential of pressing residues from evening primrose in comparison to other oil seed cakes and plant antioxidants. Ind Crop Prod 2007; 25: 44-54.
[5] Wettasinghe M, Shahidi F, Amarowicz R. Identification and quantification of low molecular weight phenolic antioxidants in seeds of evening primrose (Oenothera biennis L.). J Agr Food Chem 2002; 50: 1267-71.
[6] Matsumoto-Nakano M, Nagayama K, Kitagori H, Fujita K, Inagaki S, Takashima Y, et al. Inhibitory effects of Oenothera biennis (evening primrose) seed extract on Streptococcus mutans and S. mutans-induced dental caries in rats. Caries Res 2011; 45: 56-63.
[7] Sukla YN, Srivastava A, Kumar S. Aryl, lipid and triterpenoid constituents from Oenothera biennis. Ind J Chem 1999; 38: 705-8

[8] Singh S, Dubey V, Singh DK, Fatima K, Ahmad A, Luqman S. Antiproliferative and antimicrobial efficacy of the compounds isolated from the roots of Oenothera biennis L. J Pharm Phar-macol 2017; 69: 1230-43.
[9] Pellegrina CD, Padovani G, Mainente F, Zoccatelli G, Bissoli G, Mosconi S, et al. Anti-tumour potential of a gallic acid-containing phenolic fraction from Oenothera biennis. Cancer Lett 2005; 226: 17-25.
[10] Granica S, Czerwinska ME, Piwowarski JP, Ziaja M, Kiss AK. Chemical composition, antioxidative and anti-inflammatory activ- ity of extracts prepared from aerial parts of Oenothera biennis L. and Oenothera paradoxa hudziok obtained after seeds cultivation.J Agr Food Chem 2013; 61: 801-10.
[11] Ahmad A, Singh DK, Fatima K, Tandon S, Luqman S. New constituents from the roots of Oenothera biennis and their free radical scavenging and ferric reducing activity. Ind Crop Prod 2014; 58: 125-32.

Table 1

s.no	Plant species	Plant parts investigated	Isolated compounds
1	O .biennis	roots	Esters: methyl benzoate, methyl and ethyl esters of gallic acid , protocatechuic acid Methyl anthranilate Carboxylic acids: phenylacetic acid alcohols :benzyl alcohol alcohols:2-methyl-7-oxo-tritetracont-1,5-dien-21-ol, 5-methyl-27-oxo-triacont-4-en-24-ol
		Seeds	Triterpenoids: oleanolic acid, maslinic acid Fatty acids:18-hydeoxypentacos-21-en-1-oic acid, betulinic acid, morolic Acid oleic acid, g-linolenic acid, linoleic acid Phenolic acids: salicylic acid, gentisic acid, vanillic acid, caffeine acid, p-hydroxybenzoic acid, protocatechuic acid, p-coumaric acid, ferulic acid, p-hydroxy phenylacetic acid, syringic acid, gallic acid,2-hydoxy-4-methoxybenzoic acid, 7 , 8-trimethylellagic acid Lactones : oenothera-phenoxylactone, oenothera-phytyllactone Flavonoids: catechin, epicatechin, isoflavones, chalcone