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COMPARATIVE STUDY OF VARIOUS EXTRACTS OF SOLANUM VIRGINIANUM FOR ANALGESIC ACTIVITY

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ABSTRACT
The rationale for the evident therapeutic potential of the proposed plant drug in the folkloric literature and scientifically proven, the current study was aimed to investigate the analgesic potential of plant extracts. So it is hypothesized that plant extracts may have analgesic activity. The study findings potentiate the pharmacological basis to use the plant as an alternative source of an analgesic to reduce pain as well as to develop a novel analgesic strategy in folk and complementary medicine.

Keywords: Analgesic, Plant. Extract.

INTRODUCTION

There is a promising future of medicinal plants as there are about half million plants around the world, and most of them are not investigated yet for their medical activities and their hidden potential of medical activities could be decisive in the treatment of present and future studies . In the development of human culture medicinal plants have played an essential role, for example religions and different ceremonies [1]. Among the variety of modern medicines, many of them are produced indirectly from medicinal plants. Many food crops have medicinal effects, for example garlic. Studying medicinal plants helps to understand plant toxicity and protect human and animals from natural poisons [2]. The medicinal effects of plants are due to secondary metabolite production of the plants. Keeping this in consideration there have been increased waves of interest in the field of research in natural product. Herbal medicines tend to be more effective for longstanding health complaints that don't respond well to traditional medicine. Medicinal plants are important species of plants that according to the traditional medicinal practices and also from modern scientific studies are useful for medicinal purposes to alleviate diseases, make human health more invigorating. These plants are contemplated as prosperous sources of ingredients that can be used in the combination and fabrication of drugs [3]. Plants consist of various kinds of chemical constituents known as phytoconstituents. Use of medicinal plants is one of the greatest principal ways of aggressive illnesses and relieving pain, and as pharmaceutical industry is advancing, many synthetic analgesics have been familiarized into pharmacology with many side effects alongside promoting analgesic capacity [4].

Experimental work

Identification, Collection and authentification of plant drug

The plant was identified on the basis of its vernacular and common name with its morphological characteristics. Identified drug is collected from local area of Bhopal in the month of January. The plant samples was identified and authenticated by the department of Pharmacognosy, RKDF College of Pharmacy, Bhopal and a voucher specimen of plant has been deposited in herbarium for further reference.

Drying of plant drug

Solanum Virginianum leaves are cleaned with water to remove dirt and other environmental foreign matter; cleaned leaves are dried away from sun light, under shade for seven days. Dried leaves of Solanum Virginianum were subjected to mechanical grinding to produce coarse particle of leaves.

Extraction of Solanum Virginianum leaves

The dried coarsely powdered drug 100 gm was packed in soxhlet apparatus and defatted with pet. Ether (20-300c) till complete defatted. Complete defatting ensured by placing a drop by thimble on the filter paper which did not exhibited any oily spot.

The defatted material was removed from the soxhlet apparatus and air dried to remove the last traces of petroleum ether. The defatted material was subjected to extraction by Ethanol as solvent by soxlet apparatus. The extract obtained with each solvent was weighed and percentage yield calculated.

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Animals

Healthy albino rats of either sex (95-110) with no prior drug treatment were selected to carry out all the present in vivo studies. The animals were used after an acclimatization period of 3 days to the laboratory environment. They were housed in standard metal cages and provided with food and water ad libitum. Animal study was performed in division of pharmacology, RKDF college of Pharmacy, Bhopal (M.P.) with due permission from institutional ethical committee.

Grouping of Animals

For analgesic activity, animals of either sex weighed between 95 and 110 g were divided into four groups in each group consisting of six animals as follows:

Group I Control (no treatment)

Group II Standard (Aspirin 25mg/kg)

Group III Petroleum ether extract of *Solanum Virginianum* (100mg/kg)

Group IV Perolium eth Ethanolic extract of *Solanum Virginianum* (100mg/kg)

Eddy's hot plate method

The animals were treated with Aspirin as standard, dried extract and its fraction which formulated as a suspension in distilled water and administered orally using intragastric tube. The animals were individually placed on the hot plate maintained at 55ºC and the response time was noted as the time at which animals reacted to the pain stimulus either by paw licking or jump response, whichever appeared first. The cut off time for the reaction was 15 seconds [5- 7].

Table: 1 Analgesic activity of various extracts of Solanum Virginian leaves on Eddy's hot plate method.

Time in minute	Control	Standard	Petroleum ether	Ethanol
0	122.13±20	155.15±1.8	97.10±2.9	127.10±2.4
30	123.10±20	447.15±2.3	146.30±2.3	303.25±3.6
60	107.15±2.9	491.25±6.5	275.10±1.9	406.25±20

RESULTS AND DISCUSSION

Result of analgesic activity of Petroleum ether and Ethanolic extract of *Solanum Virginianum* leaves on Eddy's hot plate method.

The results of present study indicate the ethanol and petroleum ether leaves extracts of *Solanum Virginianum* leaves possesses analgesic effect. Analgesic effect of the extracts was demonstrated in the experimental models using Eddy's hot plate method using thermal stimuli. The results are shows in table

CONCLUSION

Pharmacological screening of botanicals is necessary for viewing new chemical entities in normal subjects, which is designed to search for novel drug actions at an early stage of drug development. In the present investigation, the analgesic activity in rats revealed that the ethanolic and petroleum ether extract 100 mg/kg of Solanum Virginianum leaves is safe. The significant analgesic action may be attributed to the phytoconstituents present in it. The present study offered a scientific proof to the traditional use of Solanum Virginianum. However, further phytochemical studies are needed to isolate the active compounds responsible for this pharmacological activity.

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