EVALUATION OF STERIODAL CONTENT IN *CALOTROPIS GIGANTEA*

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Summary

Calotropis species are perennial herb with a long history of use in traditional medicinal especially in the tropical and subtropical regions. A wide region of chemical compounds including cardiac glycosides, flavonoids, phenolic compounds, terpenoids have been isolated from this species. Extracts, latex & metabolites from this plant have been found to possess various pharmacological activities. In this study the steroidal content was determined. The Total and free steroid content present in dried latex were determined quantitatively by UV spectrophotometer method using cholesterol as standard. The total steroid and free steroid content was found to be 4.2 and 1.5 % w/w respectively.

Keywords - Steroid, *Calotropis gigantea.*

Introduction

Humankind first utilizes materials found in environment on an empirical basis to cure various ailments. Natural products from plants and animals traditionally have provided the pharmaceutical industry with one of its important sources of lead compounds in search of new drugs and medicines. The search for new pharmacologically active agents from natural resources such as plants, animals and microbes led to discovery of many clinically useful drugs[1]. Scientific interest in medicinal plants has burgeoned in recent times due to increased efficiency of new plant derived drugs and rising concerns about the side effects of conventional medicine. Inflammation is seen in conditions such as Alzheimer's disease, cancer, irritable bowel syndrome and hepatic diseases. It is believed that controlling inflammation may help to alleviate these conditions or even prevent them. *Calotropis gigantea* has been reported to have various pharmacological activities like antifertility, cardiotonic, antimicrobial and many more.[2]

Thus the present investigation was carried out to evaluate the potential of *Calotropis gigantea* and determine the total and free steroid content in dried latex which is responsible for its pharmacological activity.

Methods

***Procurement of Plant Material*:** The dried aerial parts of *Calotropis gigantea* were procured from the local market of Mumbai and the sample was authenticated at Agharkar Research Institute, Govt. of India, Pune. The latex oozing out from the plant was collected through giving 'V' shaped incision on the branches of the plant, planted in the medicinal garden of the institute which is an authenticated species.

***Preparation of extract*:**. The fresh latex was collected and dried in vaccum oven at 60°C for 48 hours.

I Quantitative Estimation of Phytosterols: [3]

(a) Preparation of standard solution:

The Phytosterols were estimated by comparing with standard cholesterol (Himedia Lab Pvt. Ltd. Mumbai). Weighed accurately 200 mg of cholesterol and was dissolved in minimum amount of glacial acetic acid and volume was made up to 100 ml with glacial acetic acid.

(b) Preparation of sample:

Weighed 0.5 gm of the dried latex and was hydrolyzed with 10 ml concentrated hydrochloric acid. Then the sterols were extracted three times with 10 ml of chloroform. The chloroform was evaporated to obtain the residue. The residue was weighed and dissolved in glacial acetic acid to obtain a solution of 10 mg/ml.

Procedure:

Transferred 0.2, 0.4, 0.6, 0.8 and 1 ml of the standard cholesterol solution in different precalibrated (5ml) test tubes, to these test tubes acetic anhydride and concentrated sulphuric acid was added and kept in dark for 20 mins. The color developed was read on UV visible spectrophotometer (Elico SL 159) at 540 nm. Same treatment was given to test samples and the results were obtained by extrapolation using the calibration curve.

Results and Conclusions

Steroid Content:

Total Steroid: Dried latex contains 4.2 % w/w of steroid.

Free Steroid: Dried latex contains 1.5 % w/w of steroid.

Phytochemically the plants have been investigated for cardenolides from the latex and leaves[4,5], triterpenoids[5], anthocyaninis from flowers[6] and hydrocarbon[7]. The literature supports the medicinal value of calotropis species, considering it has various pharmacologically activities. Although the plant contains various other constituents, a systematic attempt has been made to provide steroidal content of the plant which will help photochemical and pharmacological evaluation of this plant and enable to exploit its therapeutic use in traditional medicine.

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