



PHYTOCHEMICAL PROFILE OF THE LATEX EXTRACTS OF CALOTROPIS PROCERA (AITON) DRYAND

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ABSTRACT

Calotropis procera (Aiton) Dryand. is a medicinal plant whose pharmacological properties are associated with its latex. In present study, aqueous and methanolic extracts of the latex were evaluated in an attempt to trace the presence of phytochemicals. The crude latex was diluted in the ratio of 1:10. The results revealed that some phytochemicals exhibited their presence in the aqueous solvent whereas some displayed their presence in the methanol. These findings provide an explanation for the use of different solvents in the experiments of phytochemical screenings.

Keywords: Latex, Aqueous extract, Methanolic extract and Phytochemical constituents

INTRODUCTION

Calotropis procera (Aiton) Dryand (Sodom apple) is a member of the plant family Asclepiadaceae [2, 9, 12]. Height of the shrub is about 6m high and it is tall, erect, large, much branched and possesses milky latex throughout [7,13]. The plant is extensively used by traditional healers in various parts of the world because of its medicinal properties [4,11]. The parts such as root bark, stem, flowers, and leaves are widely used in the folk medicine for the treatment of diseases like cough, cold, fevers, asthma, indigestion, nausea, vomiting, diarrhoea, rheumatism, eczema, purgative, anthelmintic, anticoagulant, anticancer, antipyretic and analgesic [1, 10, 12]. The medicinal and pharmacological properties of the plant are associated with its latex, which is a rich source of biologically active compounds [2]. Here in this study the phytochemical profile of the latex using the two solvent systems i.e., water and methanol had been evaluated.

MATERIALS AND METHODS

1. Collection and preparation of latex extracts- The fresh latex of *Calotropis procera (Aiton) Dryand.* was collected from the plants near Gujarat University, in the month of November 2019. The latex from the aerial parts of the healthy plants was collected in clean glass tubes. The collected sample was brought to the laboratory. The latex was diluted in the ratio of 1:10 using two solvents i.e., distilled water and methanol respectively.

2. Determination of Phytochemical Constituents- The aqueous and the methanolic latex extracts of the plant were further analysed for the presence of alkaloids, flavonoids, phenols, saponins, tannins, terpenoids, steroids and cardiac glycosides using the standard procedures as described by [3, 8].

RESULTS

Table 1 represents the result of the preliminary phytochemical screening.

S. No.	Phytochemicals	Test	Methanolic Extract	Aqueous Extract
1	Alkaloids	Mayer's test	++	+

		Wagner's test	-	+++
2	Flavonoids	Lead acetate test	+++	-
		Ferric chloride test	+	-
		H ₂ SO ₄ test	++	+
		Zinc hydrochloridetest	-	-
		Pew test	-	-
3	Phenols	Potassium dichromate test	+++	-
		Lead acetate test	+++	-
		Ferric chloride test	+	-
4	Saponins	Foam test	-	+++
		Frothing test	-	+++
5	Tannins	Bromine water test	++	++
		Ferric chloride test	+	-
		Potassium dichromate test	+++	-
6	Terpenoids	Copper acetate test	+	-
7	Steroids	Salkowski's test	+++	+
8	Cardiac glycosides	Bromine water test	++	+
		Legal test	-	-

+++ →significantly present; + →present; - →Absent

Table 1

The latex extracts screened for the various phytochemical compounds revealed the presence of alkaloids, flavonoids, phenols, tannins, terpenoids, steroids and cardiac glycosides in the methanolic extract. Saponins were found completely absent in this extract. In the aqueous latex extract alkaloids, flavonoids, saponins, tannins, steroids and glycosides were present whereas phenols and terpenoids were found completely absent.

DISCUSSION

The result of the phytochemical analysis of the latex extracts has indicated the presence alkaloids, flavonoids, steroids and cardiac glycosides in both the solvents. This result is similar with the studies reported by [6]. In the present study the methanolic extract showed the presence of phenols, tannins and terpenoids whereas saponins were found completely absent. Previous study reported by [6] revealed the presence of phenols and saponins whereas tannins and terpenoids were found completely absent. This result is in contrast with the present study.

In the aqueous extract, the current study shows the presence of saponins and tannins whereas phenols and terpenoids are absent. The study by [6] reported the presence of saponins, tannins and terpenoids whereas phenols were found completely absent. The absence of phenols generates difference in the results.

CONCLUSION

The results obtained in this experiment shows that the latex of *Calotropis procera* (Aiton) Dryand. is a good source of many phytochemicals. It can be inferred that the various medicinal and pharmacological properties of this plant is due to the presence of latex throughout the plant [15]. Some of the phytochemical groups showed their presence in the methanolic extract whereas some displayed their presence in the aqueous extract. To confirm the presence of these phytochemicals further evaluation is needed. Methods like HPLC and HPTLC can further help in verification of the occurrence and in finding the exact amount of the phytochemicals present in the extracts [15].

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