

Research Article

Phytochemical Analysis and Antimicrobial Activity Studies of Sirukurinjan Ver Powder

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Abstract: This study deals with pharmacognostic screening, preliminary phyto-chemical screening and microbial screening of Sirukurinjan ver. In this screening, pharmacognostical studies are concerned for the determination of physicochemical constants like ash values, extractive values, and loss on drying. This ver were subjected to soxhlation using methanol, petroleum ether, and water. This extracts thus obtained were studied for preliminary phyto-chemical screening for detection of presence of various chemical properties viz., alkaloids, tannins, anthraquinone and phenol. The antimicrobial activity of aqueous extract was evaluated against five microorganisms *E. coli*, *S. aureus*, *S. pyogens*, *S. marcescens*, *C. ablicans*, *P. vulgaris*. and found active against maximum of *E. Coli* and *C. ablicans*.

Keywords: Sirukurinjan ver, Pharmacognostical Screening, Phytochemical and Microbial screening

INTRODUCTION

After several decades of many serious problems with the modern medicine system, several people started ancient systems of medicine like Siddha, Ayurveda and Unani [1]. This is because of the adverse effects which is associated with modern drugs [2]. So, people are facing so many problems with synthetic drugs. Siddha medicine plays a major role in health medicine especially in developing countries. Ancient Siddha literature plays a major role in previous age; they defined about all medicinal plants and all parts about their potential properties and their medicinal substances in several literatures.

Sirukurinjan ver (*Gymnema Sylvestre*) belongs to Asclepiadaceae. It is an annual herb, widely distributed in India, Malaysia, Srilanka, Australia, Indonesia, Japan, Vietnam, tropical Africa and the southwestern region of the People's Republic of China. *G. sylvestre* is a potent antidiabetic plant and used in folk, ayurvedic and homeopathic systems of medicine. It is also used in the treatment of asthma, eye complaints, urinary complaints, family planning, stomach problems, snakebite, piles, chronic cough, colic pain, breathing troubles, constipation, cardiopathy, dyspepsia and hemorrhoids, hepatosplenomegaly. It also possesses antimicrobial, antihypercholesterolemic, anti-inflammatory and sweet suppressing activities [3].

MATERIALS AND METHODS

Preparation of extract

Sirukurinjan ver part of this plant were dried and chopped to make coarse powder. This powder is subjected to degreasing with petroleum ether solvent (70-80) °C by continuous extraction method for 48 hrs.

After that extract the sirukurinjan ver is subjected for ethanolic and methanolic extraction successively. The yield of this ethanolic and methanolic extract was 16% and 12% w/w. Aqueous extract was prepared by boiling 10% wt/wt of sirukurinjan ver powder in sterile distilled water for 10 mins and cooled then filtered. The yield of the extract was 12%w/w.

Physio-Chemical Parameters

Physio – chemical parameters of this powdered drug are subjected to ash values, extractive values, loss on drying which is performed according to the method of Indian pharmacopoeia.

Preliminary phyto-chemical screening

Preliminary phyto-chemical screening was performed according by J.B. Harborne, et.al. [4].

Anti microbial activity

The aqueous extract of siru kurinjan ver powder was screened for their antimicrobial activity by disc diffusion method [5]. The aqueous extract of sirukurinjan ver powder was found to anti bacterial activity at 100mg/ml conc. A suitable dilution of a broth culture or a broth suspension of the test organism is poured on the surface of nutrient agar. The plate is tilted to ensure that uniform spreading is made off. Then the plates are dried for about 30 mins at 37° c. after that the drug solution is applied with the help of sterile forceps for appropriate concentration for about 6mm. This is kept for overnight incubation; sensitivity is determined by measuring the zones of inhibition of growth found in the discs. Growth will be inhibited around discs which containing antibiotics to the bacteria is susceptible but it is not seen in resistant.

The diameter of the zone of inhibition is influenced by various factors such as disc concentration, composition, pH, incubation time, so it is very

important to standardize various variables. It is also very important to check the sensitivity of the bacteria.

RESULTS

Table 1: Data for ash values of the Sirukurinjan ver powder

S I. No.	Parameter	% W/W
1	Total Ash	14.52
2	Acid Insoluble Ash	2.10
3	Water Soluble Ash	12.12
4	Sulphated Ash	4.6
5	Water Soluble Extractive	98.12
6	Alcohol Soluble Extractive	14.23
7	Loss on Drying	33.24

Table 2: Preliminary phyto chemical screening of the Sirukurinjan ver powder

Sl. No.	Phytoconstituents	Petroleum Ether Extract	Methonal Extract	Aqueous Extract
1	Alkaloids	+	+	+
2	Glycosides	-	+	-
3	Saponins	-	+	-
4	Tannins	-	+	+
5	Proteins	+	+	+
6	Flavanoids	+	+	-
7	Lignins	+	-	-
8	Carbohydrates	+	+	-
9	Volatile Oils	+	+	+

Table 3: Minimum inhibition concentration of aqueous extract of Sirukurinjan ver with different microorganism

S I. No.	Test Microorganism	Diameter of Inhibition(mm)		
		25µl/disc	50 µl/disc	75µl/disc
1	<i>E. coli</i>	8±0.36	12±0.12	14±0.57
2	<i>Staphylococcus aureus</i>	6±0.24	12±0.17	13±0.75
3	<i>Staphylococcus pyogens</i>	7±0.27	11±0.6	10±0.62
4	<i>Serratia marcescens</i>	5±0.74	10±0.31	14±0.94
5	<i>Candida albicans</i>	9±0.65	10±0.19	16±0.87
6	<i>Proteus vulgaris</i>	8±0.81	9±0.19	9±0.97

CONCLUSION

The phyto-chemical investigation showed the presence of following alkaloids, glycosides, proteins, lignin, carbohydrates, flavanoids, tannins compound were identified as well as Pharmacognostical analysis and Anti microbial activity was also identified.

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