WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 7, Issue 12, 176-181. Review Article ISSN 2277–7105

PHARMACOGNOSTICAL AND PHYTOCHEMICAL EVALUATION OF ROOT OF SIDA SPINOSA LINN

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Article Received on
26 April 2018,
Revised on 16 May 2018,
Accepted on 06 June 2018
DOI: 10.20959/wjpr201812-12461

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ABSTRACT

Three species are taken as Nagbala by different scholars i.e. Sida humilis cav, Grewia hirsuta, Sida spinosa Linn. It is necessary to study all 3 species to confirm for effectiveness of their immunomodulatory activity. Sida spinosa Linn was taken as Nagbala by Dr. V. G. Desai and Dr. Chunekar. Many single drugs are described in the concept of Rasayana therapy may be interpreted as life promoters and expected to act as immunopromoters. Nagbala has been described by Brihatrayi for its effective Rasayana action, in both preventive aspect i.e. Rasayana Chikitsa and curative aspect i.e. treatment of various diseases like Kshata Kshaya, Gulma, Madatyaya, Kasa Granthivisarpa. This study was aimed at Evaluation of pharmacognostical and Phytochemical analysis of Nagbala (Sida spinosa Linn.) root by pharmacognostical and Phytochemical analysis. The present study reveals standardization of Sida spinosa Linn. Root Powder and Decoction which includes determination of moisture content, total ash, acid soluble ash, water extractives, alcohol extractives, T.L.C, pH value, refractive value, and microscopic study of root. The study analysis for the presence of certain chemical constituents like alkaloids, proteins, tannins.

KEYWORDS: Root of Sida spinosa Linn., Nagbala, Pharmacognostical and Phytochemical analysis.

INTRODUCTION

Nagbala has been described by Brihatrayi for its effective Rasayana action, in both preventive aspect i.e. Rasayana Chikitsa and curative aspect i.e. treatment of various diseases like Kshata Kshaya, Gulma, Madatyaya, Kasa Granthivisarpa.

It is also use as Naimittik Rasayana for Kshata and Kshaya. In Sarvopaghatakshamaniya Adhyaya Sushrutacharya has described single drug Rasayana Prayog of different Dravyas, Nagbala Rasayana was prescribed for Raktapitta, Raktachardi and Raktavirechana. In Charak Samhita Nagbala Rasayana vidhi is described in detail with its Sangraha kal, useful part, Anupan, dosage form which indicate its importance as single drug Rasayana.

For Rasayana purpose Nagbala root Churna and Nagbala Siddha Ghruta is mentioned and for Siddha Ghruta preparation Nagbala Kwath is used. So, Nagbala root Churna and root Kwath is considered for present study.

Sida spinosa Linn (family- Malvaceae) is under shrub 60cm high. Much branched with minute stellate hairs leaves 0.6-3.0 x 0.4-2.5 cm and yellow flowers, seeds ovoid obscurely trigonus Dull brown - black. Nagbala is commonly found in Indian forest but not routinely use in large scale. (Flora of Maharashtra State. Vol.1 published by Botanical survey of India) Three species are taken as Nagbala by different scholars i.e. sida humilis cav, Grewia hirsuta, Sida spinosa Linn. It is necessary to study all 3 species to confirm for effectiveness of their immunomodulatory activity. Sida spinosa Linn, was taken as Nagbala by Dr. V. G. Desai and Dr. Chunekar.

MATERIALS AND METHODOLOGY

Collection of drug

Plant of Sida spinosa Linn. Was collected from Singh gad Fort Pune on January 2016, only healthy matured non infected plant was collected.

Plant specimen was Identified and Authentified at University of Pune, Dept. of Botany, Pune Maharashtra. (Reference No.228/17-18).

Roots were separated from collected plants washed and then air dried in the shed.

Preparation of Dosage forms

Root Churna and Kwath are prepared for the experiment as per methods given in Sharangdhar Samhita.

Preparation of Churna

Roots were pounded into fine powder, size of 100 mesh with the help of grinder.

Preparation of Kwath: Decoction was prepared by using 1 part of coarse powder of drug and 16 parts of water; which was boiled and reduced to 2 parts. These remaining 2 parts of decoction was filtered and used for experiment.

Every day freshly prepared Kwath was used for experiment.

Macroscopic study of root of Sida Spinosa Linn.

The root is tapering and provided with fibrous rootlets. The external colour is yellowish brown while internal colour is creamish yellow. Outermost region is epiblema. It follows secondary cortex (periderm) which contains secondary phloem and secondary xylem and indiscriminately scattered vessels. At the centre inconspious pith is present.

Microscopic study of root of Sida Spinosa Linn.

In transverse section it shows circular in outline. The single layered epiblema of barrel shaped cell are observed. Epiblema region protects the internal periderm region. It follows the secondary phloem which consists of phloem parenchyma. These are compactly arranged. It follows the secondary xylem region (wood). It consists of xylem parenchyma ray parenchyma vessels, trachids and wood fibres. Presence of starch grains in xylem parenchyma and ray parenchyma. At the centre pith is absent.

Table no. I: Physicochemical analysis of Powder

Name of Test	Result
Description	Greenish yellow coloured powder
Ash value	10.38%
Acid soluble ash	0.45%
Loss on drying	0.19%
Water extractive	6.50%
Alcohol extractive	1.22%

Table no. II: Phytochemical analysis

Alkaloids	+ve
Proteins	+ve
Fats	-ve
Flavonoids	-ve
Volatilevoils	-ve
Tannins	+ve
Glycosides	-ve

Table no. III: Thin layer chromatography of Powder

Sr.No.	Observation	Spot	RF value	Colour
1.	Eye	1	0.99	Green
2.	254nm(UV)	1	0.99	Green
3.	365nm(UV)	5	0.99 0.98 0.80 0.60 0.32	All Yellow
4.	Iodine	5	0.99 0.98 0.80 0.60 0.32	All Yellow

Stationary phase - Toluene: Ethyl Acetate

Formic acid (6:3:1)

Mobile phase - Ethanol Extract

Table no. IV: Physicochemical analysis of Decoction.

1	Description	Faint brownish colour
2	pH value	6.36
3	Total solid content	0.692 %
4	Acid Value	0.30
5	Specific gravity	1.0020 gm/ml

Table no. V: Thin layer chromatography of Decoction.

Sr.No	Observation	Spot	RF value	Colour
1	Eye	2	0.99 0.24	All Yellow
2	254nm(UV)	2	0.99 0.24	All Yellow
3	365nm(UV)	3	0.99 0.81 0.24	All Yellow
4	Iodine	3	0.99 0.81 0.24	All Yellow

Stationary phase - Toluene: Ethyl Acetate

Formic acid (6:3:1)

Mobile phase - Ethanol Extract

Fig-1. Sida Spinosa Linn.

Fig-2. Flower Sida Spinosa Linn.

Fig-3. Roots of Sida Spinosa Linn.

Fig-4. T.S. of Root of Sida Spinosa Linn.

Fig-5. Powder Sida Spinosa Linn

Fig-6. Decoction Sida Spinosa Linn.

CONCLUSION

Rasayana drugs described in Ayurveda may possess immunomodulatory, antioxidant and rejuvenating effects. Also they may prevent diseases and promotes healthy life.

Different Rasayana yogas described in Samhitas are plant originated and mostly consist of single drug. Nagbala is one of the single drug Rasayana mentioned in Brihattrayi.

Churna and Kwath of root of Sida spinosa Linn. Is used for preliminary Phytochemical analysis shows presence of Alkalide, Protiens, and tannins.

This pharmacognostical and Phytochemical study of Sida spinosa Linn is useful to provide information of the standerdization and for further experimental and clinical research.

ACKNOWLEDGEMENT

The author is thankful to express sincere gratitude to Dr Abhijit Patil, Principal, B.V.D.U.C.O.A. Pune, Dr. Manasi Deshpande (H.O.D.) Department of Dravyaguna vigyan B.V.D.UC.O.A. Pune. Also author is very much thankful to Dr. Apte from NTC institute Pune, Dr. Devakule SPPU Pune and Mrs. Desai from IDRAL Pune for their guidance.

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