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HPLC CHROMATOGRAM INTERPRETATION OF TWO SPECIES OF ROOT OF JAYANTI (*SESBANIA SESBAN AND SESBANIA ACULEATA)*

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ABSTRACT

Ayurved is an Indian system of medicine which deals with concept of Being healthy as well as fight against various diseases. Ayurved not only describes about physical health but also about mental health and well being. For this purpose many medicinal plants are described in various classics of Ayurved.One such medicinal plant studied was Jayanti and its species Itkat.Sesbania is a genus involving various genus species. It involves 2 important Species as *Sesbania sesban Linn. And Sesbania bispinosa.*In the present study Jayanti moola has been selected for the Pharmacognostical and Phytochemical study as this drug is being unexplored Yet. Various therapeutical uses are mentioned in classics but not used clinical Trials are carried out yet.

KEYWORDS: Ayurveda, interpretation, HPLC, analysis.

INTRODUCTION

Classical ayurvedic texts have references showing uses of Jayanti moola in Various diseases. It is easily available and cost effective and having high medicinal values. Still information regarding standardization of Jayantimoola is not available In standard referece books. Before using any medicinal plant it is important to study that plant on the Parameters like Pharmacognosy, Pharmaceutics, Phytochemical analysis, HPTLC or HPLC etc. So an attempt is made to study the comparative pharmacognostic and Phytochemical study of two species of Jayanti moola (*Sesbania sesban & Sesbania aculeta*) and their quality parameters. In market which species of jayantimoola either *sesbania sesban or Sesbania aculeta* used is not specifically known, so that's why it is Necessary to know the exact species of which

jayantimoola is commonly Used. After complete knowledge about standardization of drug then only it can Be utilized further for experimental and clinical study.

MATERIALS AND METHODS

It is an analytical study

1) Sample name: Root extract of *Sesbania sesban.*

Sample type: Coarse dried powder of root extract of plant species *Sesbania Sesban.*

Preliminary studies

Sample of sesbania sesban

Sample Weight/Volume	800 mg sample
Solvent selected for Extraction	Water:ACN:MeOH(2:3:3 v/v), 6ml
Sample concentration	100mg/ml
Temperature	29*C
P^H (100% Distilled Water)	NA
Wavelength (nm)	210, 254nm

Instrumentation and HPLC-UD/DAD chromatography specifications

HPLC Instrument details	Shimadzu 10 Avp, Quaternary Pump, UV/DAD detector
HPLC Column details	UltraSil R P; (5ul, 150*4.6mm,ID)
Mobile phase/Eluent Composition	15mM KH_2PO_4-Methanol (30:70 %, v/v)
Temperature	28*C
Wavelength selected	210 and 254 nm wavelength
Flow rate	1.0ml/minute
Injection Volume	20 ul

Method details

Freshly prepared stock solutionof exactly 200mg of root extract of Sesbania sesban was dissolved into 5 ml of methanol-acetonitrile-water (2:2:1, v/v).It was kept for 12 hours room temperature and then heated for 10 minutes at 45*C. Furthermore, the sample was ultra-sonicated for 10 inutes to facilitate complete extraction of all phytoconstituents from root extract of Sesbania sesban. After extraction the sample was filtered through 0.45 ul nylon micro-filter, sonicated and injected to the HPLC for further analysis.Exactly 20 ul freshly derived sample was injected to the UltraSil RP HPLC column and eluted at the flow rate of 1.0 ml/minutes. Total analysis time was 70 minutes and solvent composition was 15 mM

KH2PO4-methanol (30:70%, v/v). All separated phytoconstituents were detected at 210 and 254 nm wavelength.

HPLC – DAD Interpretation report (RP-HPLC)

Test for Determination	Number of components	Contribution %	Any Remarks
Aliphatic/Phenolic/Polyphenolic Acids	2	2-3%	Phenolic Acids
Glycosides/Sugar-Terpinoids	3	8%	Glycosides

Specific Components Identification/Characterisation

Test for Determination	Name of components identified	Contribution %
Aliphatic/Phenolic/Polyphenolic Acids	Detected but not reported by anyone earlier	2-3%
Phytoamines/Alkaloids	Not observed	
Polyphenols/Flavonoids/Antioxidants	Not observed	
Glycosides/Sugar-Terpinoids	Detected; Presumed tobe glycosides	8%
Terpinoids/Tocopherols	Not observed	
Phytosterols/Steroids	Not observed	

HPLC Chromatogram Interpretation Report of *Sesbania sesban*-

a. Two Phenolic Acids have been identified but the amount is quite negligible i.e.2-3% only.

b. No any Alkanoids, flavonoids, terpenoids and steroids (phytosterols) have been detected.

c. It shows the presence of 3 saponin glycosides in roots extract. Earlier only one saponin glycoside has been mentioned/reported but in this HPLC analysis 2 more componenets heve been detected; nonetheless, their concentration are quite less i.e.8% only.

2) Sample name: Root extract of Sesbania aculeata

Sample type: Coarse dried powder of root extract of plant species Sesbania aculeate.

Same method and procedures applied as above.

Pecific Components Identification/Characterisation

Test for Determination	Name of components identified	Contribution %
Aliphatic/Phenolic/Polyphenolic Acids	Observed but not specified earlier	4-5%
Phytoamines/Alkaloids	Not observed	
Polyphenols/Flavonoids/Antioxidants	Not observed	
Glycosides/Sugar-Terpinoids	Detected and importantly not specified/reported earlier	19-20%
Terpinoids/Tocopherols	Not observed	
Phytosterols/Steroids	Not observed	

HPLC Chromatogram Interpretation Report of *Sesbania aculeata*

a. Few Phenolic Acids have been identified and their amount is comparatively higher than *sesbania sesban.*

b. No any Alkanoids, flavonoids, terpenoids and steroids (phytosterols) have been detected.

c. It shows the presence of almost 7-8 saponin glycosides in roots extract of *Sesbania aculeata.* Importantly, no one has previously reported any such glycosides in this species, specifically in roots extract. Compared with *Sesbania sesban*, it contains more number (7-8 glycosides) and even their concentration are higher than other subspecies; *Sesbania sesban* as it shows the presence of only 2-3 glycosides.

d. Best of our knowledge, we have discovered few more glycosides in *Sesbania aculeata* which no where discussed/reported earlier. Importantly all these newly identified glycosides would have potential biological activities.

RESULTS AND DISCUSSION

 HPLC chromatograph of *Sesbania sesban* showed presence of two Phenolic Acids but the amount is quite negligible i.e.2-3%. No any Alkanoids, flavonoids, terpenoids and steroids (phytosterols) have been detected. It shows the presence of 3 saponin glycosides with concentration as 8% in roots extract.

 HPLC chromatograph of *Sesbania aculeata* showed presence of few Phenolic Acids and their amount is comparatively higher than sesbania sesbanbi.e.4-5%.

No any Alkanoids, flavonoids, terpenoids and steroids (phytosterols) have been detected. It shows the presence of almost 7-8 saponin glycosides with concentration as 19-20%.

CONCLUSION

The present study can be concluded as

- No any reference of Jayanti and Itkat was found in Bruhattrayi.
- From all the above Chromatographical analysis it can be concluded as both the species *Sesbania sesban (L.)Merr. and Sesbania aculeate (Willd.)Pers.* having nearly similar chemical constituents with different level of concentrations.
- Based on analysis of *Sesbania sesban and Sesbania aculeata*, it would presumed that *Sesbania aculeata* is more potent than *Sesbania sesban* with respect to number of componenets and their overall concentrations.
- Presence of 7-8 saponin glycosides reported in the study for the first time ever. This is the unique feature of this study.

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