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ANALYSIS OF PHYTOCHEMICAL COMPONENT AND NUTRIENTS COMPONENT IN ETHANOL EXTRACTED *OLDENLANDIA CORYMBOSA*

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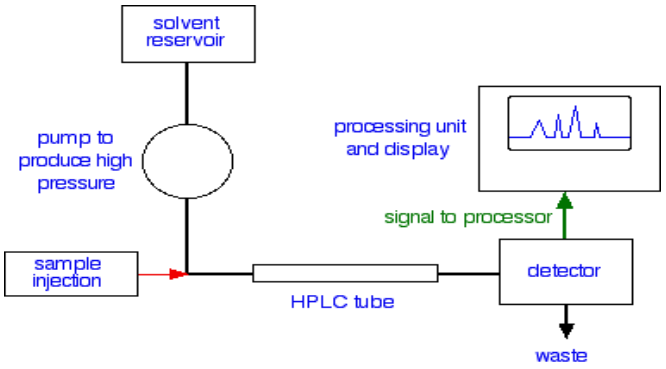
ABSTRACT

The medicinal plants have been used for treatment of illnesses and diseases. Plants that possess therapeutic properties or exert beneficial pharmacological effects on the human body are designated as medicinal plants. Medicinal plants naturally synthesized and accumulate some secondary metabolites like alkaloids, sterols, terpenes, flavonoids, saponin, glycosides, cyanogenics, tannins, resins, lactones, quinines, volatile oils etc. The use of traditional medicine is widespread and plant still present a large source of natural antioxidants that might serve as least for the development of novel drugs for the treatment of stress induced disorders such as migraine. The present study investigates of ethanolic extract of O*ldenlandia corymbosa* components. The result shows the composition of phytochemical components, Micro and Macro nutrients components in ethanol extract O*ldenlandia corymbosa*.

KEYWORDS: Antioxidant, O*ldenlandia corymbosa*, HPLC, Micro nutrients, Macro nutrients.



INTRODUCTION

The theory and practice of the various chromatographic methods should convince you of the tremendous influence chromatography have had on our biochemical understanding. Traditional column chromatography will probably always be preferred in large-scale protein purification. The traditional Liquid Chromatographic techniques in importance for analytical separation and identification of amino acid, carbohydrates, lipids, Nucleic acids, Protein, Pigments, Steroids, Pharmaceuticals, and many other biologically active molecules.

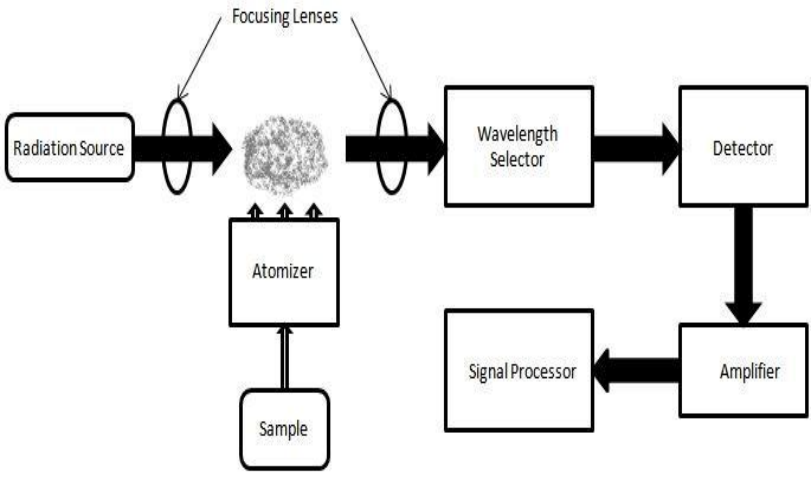
In all forms of chromatography, a measure of column efficiency is resolution, R. Resolution indicates how well solutes are separated; it is defined by Equation 1 where t_R and t'_R are the retention times of two solutes and *w* and *w'* are the peak widths of same two solutes.

$$R = 2\frac{t_R - t'_R}{w + w'}$$

Atomic absorption spectroscopy (AAS)

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down to parts per billion of a gram (µg dm–3) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level. Atomic absorption spectrometry has many uses in different areas of chemistry.

Atomic absorption spectroscopy (AAS) FLOW



PLANT DESCRIPTION

Hedyotis corymbosa (L.) Lam sym *oldenlandia corymbosa* (L.) Lam is large genus of herbs or somewhat shrubby of the family Rubiaceae, which can be found throughout India and tropical regions. There are 180 species recorded of which 35 were identified in Malaysia.[2] They grow well on dry and sandy soil, along rivers and coasts and in the forests

Kingdom	**Planate**	**Plants**
Super kingdom	Tracheobionta	Vascular plants
Super division	Spermatophyta	Seed Plants
Division	Magnoliopyta	Flowering Plant
Class	Magnoliopsida	Dicotyledons
Sub class	Asteridae	
Order	Rubiales	
Family	Rubiaceae	Madder family
Genus	*Oldenlandia L*	
Species	*oldenlandia corymbosa* L	Flat top mille grains

Taxonomy

Hedyotis corymbosa is used in traditional medicine of India and China to treat various disorders such viral infections, cancer, syndromes involving “toxic heat”, acne, boils, Skin ailments, hepatitis, eye diseases and bleeding and post- partum treatments.[3] They ‘Peh-Hue-Juwa-Chi-Cao.[4] The plant is also used for treating snake bites.

Phytochemical studies have reported that *oldenlandia corymbosa* contains geneposide, 6α-hydroxy geneposide, scandoside methyl ester (6β-hydroxy geneposide), asperulosidic acid, deacetyl asperuloside, asperuloside, 10-O-benzoylscandoside methyl ester, 10-O-p-hydroxydenzoylscandoside methyl ester, (+) - lyoniresinol-3α-O-β-glucopyranoside, and rutin. Their structures were determined on the basis of spectroscopic data, while it remains unknown that which of these ingredients has an antibacterial, antiradical, etc., this research shows that herb acts primarily in the brain.[5]

MATERIALS AND METHODS

Plant collection: The *oldenlandia corymbosa* plant was collected from kodikkarai (Point Cali mere) forest during December 2007. This pant was identified Natural Historical Society (**BNHS**) Bombay. Plant extract: 50grm of *oldenlandia corymbosa* whole plant was taken, shade dried, powdered well respectively. They were extracted with adequate amount of ethanol (4:1) using soxhlet apparatus. The liquid part is stored at 4°Cin separate container.

Phytochemical analysis was carried out quantitative to identify the presence and quantify various secondary metabolites such as Flavonoids, Alkaloids, Tannin, Lignin, Terpenoids, and glycoside using by HPLC. Macro and micro nutrient where quantitatively analysed by AAS.

Table.1: Quantitative analysis of phytoconstituents of Oldenlandia Corymbosa by HPLC.

S.No	PARAMETERS	AMOUNT (mg/kg)
1	Total Alkaloids	0.42*
2	Total Flavonoids	0.62*
3	Tannin	0.13
4	Lignin	0.24
5	Glycosides	0.12
6	Serpentines	0.06
7	Terpenoids	0.05
8	Quercitins	0.03

The vale are expressed as average,*significantly high amount.

Table 2 Quantitative analysis of Micro and Macro Nutrients of Oldenlandia Corymbosa by AAS

S.NO	NAME OF THE PARAMETER	PERCENTAGE(%)/PPM
1	Ash (%)	3.64
2	Organic carbon. (%)	2.87
3	Total Nitrogen (%)	1.65
4	Total Phosphorus (%)	0.68
5	Total Potassium (%)	4.89*
6	Total Sodium (%)	0.42
7	Total Calcium (%)	5.69*
8	Total Magnesium (%)	6.79*
9	Total Sulphur (%)	0.22
10	Total Zinc (ppm)	2.64
11	Total Copper (ppm)	1.29
12	Total Iron (ppm)	42.19
13	Total Manganese (ppm)	12.36*
14	Total Boron(ppm)	0.06
15	Total molybdenum (ppm)	0.09

*The Value are expressed as average,*significantly high amount

HPLC was run in an Agilent 1100 series HPLC apparatus (Agilent, Boeblingen, Germany) using a Zorbax SB-C18 column (4.6x150mm). The column temperature has been 20°C and The pressure at 21.2 bars, Sample quantity was 10µ or 20,samples were eluted in a linear gradient of acetonitrile and water containing 0.1 % TFA from 0 – 45 % in 45 min followed by a linear gradient of acetonitrile and water containing 0.1% TFA from 45 100%in 15 min, sample was eluted at 100% acetonitrile for 10min. Flow rate was constantly kept at 0.5 ml/min. Prior to running, column was equilibrated from 30 min, chromatography was constantly measured at 230nm,330nm, and 360nm.[6]

Atomic adsorption spectroscopic for micro and macro nutrients like P, S, Ca, K, Zn, Cu, etc and variant of elements utilizing a nitric acid / hydrogen digestion and determination by atomic adsorption Spectroscopy (AAS) .The methodology utilizes a pressure digestion/dissolution of the sample and is incomplete relative to the total oxidation of organic carbon. The method has limits ranging from 0.1 mg kg^{-1} to 0.01 %. The method is generally reproducible within 8% for all analytics.

RESULT

The table shows that the micro nutrient of oldenlandia corymbosa. The plant posses appreciable amount of magnesium (6.79%), calcium (5.69%), potassium (4.89%),Ash(3.64%),Carbon (2.87%),Nitrogen (1.6%), Phosphorus(0.68%), Sodium(0.42%), Sulphur(0.22%), Iron(42.19ppm) and Molybdenum (0.09ppm) which help to carryout various biochemical reaction inside the human system.

The plant consist of secondary metabolites such as total Alkaloids (0.42 mg/Kg)Total Flavonoids (0.62mg/Kg),Serpentines (0.06 mg/kg)Terpenoids (0.05 mg/Kg) and Quercetins (0.03 mg/Kg) which posses various biochemical activity such as anticancer anti inflammatory and antioxidant activity.

CONCLUSION

The ethanolic extracts of plant contain many bioactive chemical constituents including alkaloids, glycosides, terpenoids, steroids, flavonoids, and tannins. The major source of antioxidant capacity of *Oldenlandia corymbosa* is both ascorbic acid and phenolic compounds. The protection in the body provided against oxidative damage by fruit and vegetables has been attributed to the fact that these foods may provide an optimal mix of phytochemical, such as natural antioxidants and other bioactive compounds. Therefore, the supplementation of these natural antioxidants through a balanced diet containing adequate herbs could be much more effective than the supplementation of an individual antioxidant.

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