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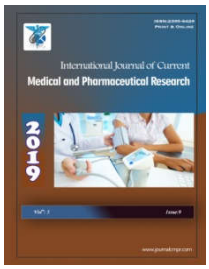

PHARMACOGNOSTICAL INVESTIGATION OF AERIAL PARTS OF PLANT PHALLYANTHUS AMARUS PLANT

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ABSTRACT

The present study deals with pharmacognestic and preliminary phytochemical investigation on aerial parts of *phyllanthus amarus plant*. Pharmacognostic evaluation including examination of microscopic characters, determination of ash values, moisture content and extractive values were carried out. Phytochemical evaluation including qualitative chemical tests.

INTRODUCTION

The phyllanthus amarus family is (Euphorbiaceae), and authenticated by Chairman department of P.G studies in Botany Sharnbasva university Kalburgi Karnataka. Plant is collected in Bidar city of Karnataka. Phyllanthus amarus is broad spectrum medicinal plant that has received worldwide recognition. It is cultivated in waste land in the month of Jun to July India. The survey of literature reveals that the medicinal plant has been used for the treatment in reducing pain expel investigation to stimulate and promote digestion, as antiheliminthes to expel investigation worms and act as mild laxative.[1] It is also used as chemoprotective, antimutagenic, nephroprotective, cardioprotective, and hepitoprotective.[2]

Phyllanthus amarus is a small erect herbal plant that grows up to 10-50 cm and it has small leaves, its stem has green capsules with flowers and very small fruits that burst open when dry. This plant is commonly called stonebreaker[3]. Phyllanthus amarus is used in traditional medicine for gastrointestinal, kidney, liver, menorrhagia and other conditions.[4] Phyllanthus amarus has been used widely in various traditional medicine to treat swelling, sores, jaundice, inflammatory diseases and viral hepatitis, while it's pharmacological and biochemical mechanism underlying its anti-inflammatory properties.[5] However, the pharmacognestic and preliminary phytochemical investigation of plant phyllanthus amarus has not been reported scientifically. The present study is therefore under taken to study the pharmacognestic and prelimiary phytochemical aspects of phyllanthus amarus.

MATERIALS AND METHODS

Plant Material

The aerial parts of plant phyllanthus amarus were collected from local areas of Bidar city Karnataka. The fresh plants phyllanthus amarus were dried and made powder. By using hammer mill and hand grinder (Avischkar suddal 1995) about 2kg of the dry powder was charged in soxhlet extractor apparatus and was extracted with polar solvent Alcohol. The extract was collected to dryness rotary evaporators (Rolex Mumbai) under reduced pressure and controlled temperature (50/60^{0}C) after dryness above extract weight and percentage yield calculated dryness.[6]Shown in table -1.

Physical parameters for the aerial parts of Phyllanthus amarus

The physicochemical parameters were determined as per W.H.O guidelines and Drug was examined and evaluated the physical parameters such as ash value, moisture content, total ash, acid insoluble ash and water-soluble extract. And calculated the yield and percentage of the physical parameters

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value obtained. Ash values are helpful in finding the quality and purity of drug, in powder form. The object of ashing vegetable drugs is to remove all traces of organic matters which may interfere in an analytical determination.[7] shown in table -2

Microscopical Examination

The microscopical examination was done by preparing a thin transverse section of stem of plant phyllanthus amrus. The section was cleared with chloralhydrate and mixture of phloroglucinol and conc. HCL for 1to 2 minutes. The section was observed under microscopic (10x) and found in the section Cuticle, Epidermis, Phloem, Cambium ring Xylem, Cortex, Pith and Palsied cells Cambium appears as a way band one third of the section. Pith has large parenchymatous pith. Centre of the pith contains some crystal deposition at the corners of the cells.[8] Shown in figure-1.

Qualitative Chemical Examination

The alcoholic extract of aerial parts of phyllanthus amarus was subjected for qualitative chemical tests the components found various phytocompounds of therapeutic interest.[9-12] Found presence of Alkaloids, Flavonoids, Carbohydrates, Tannins, Lignin's, saponin.

Test for Alkaloids

1. ***Mayer's reagent:*** cream or pale yellow is produced
2. ***Drangendr off reagent:*** Brown or reddish-brown color or precipitate present.
3. ***Wagner's reagent:*** or reddish-brown color or precipitate present brown

Test for proteins

1. ***Biuret test:*** Take 2ml of given sample in a test tube and add 2drops of copper sulphate and 1ml of 40% NaOH presence of violet or pink color
2. ***Ninhydrin test:*** Take 3ml of given sample in test tube add 1ml of ninhydrin reagent and boil for 2 min presence of blue color.
3. ***Test for Glycosides***
   a. Saponin glycosides shake the powder drug with water formation of foam
   b. Test for cardiac glycosides killer- killiani test a reddish-brown layer acquiring bluish green color after standing is observed due to presence of digitoxose at the interface and pale green color in the upper layer presence of cardiac glycosides.

RESULT AND DISCUSSION

Outline of plant stem phyllanthus amarus is round, ridges and furrows are absent, epidermis is single layered and hypodermis 2-3 layered collenchyma followed by 2-3 layered chlorenchyma. Cambium appears as a way band one to two layered. Secondary vascular tissues are phloem in patches and xylem continuous occupies one third of the section. Pith has large parenchymatous pith. Centre of the pith contains some crystal deposition at the corners of the cells. The total ash, acid insoluble and water soluble ash value, moisture content were observed.

Ethanol and aqueous soluble extractive values were observed. The qualitative chemical test of various extracts showed the presence of proteins, glycosides, carbohydrates, alkaloids, saponins, tannins.

Table 1 Weight and percentage of various extract of aerial parts of phyllanthus amarus plant

Aerial parts extract	Nature	Yield in gms	%yield
Alcohol Extract	Greenish Dark	6.5	6.5
Water extract	Yellowish pink	8.8	8.8

Table 2 Physical parameters of aerial parts of phyllanthus amarus plant

Physical parameters	Yield in gms	% of value
Total Ash value	41.35	41.35
Ash value	12.05	12.05
Acid insoluble Ash	0.586	o.586
Water soluble extractive	8.8 0	8.80

Figure 3 Qualitative chemical evaluation of Alcoholic extract of aerial parts of phyllanthus amarus

Aerial parts of extract	Alkaloids	Glycosides	Flavonids	Tannins	Saponin	Carbohydrates	proteins
Alcohol Extract	+ve	+ve	+ve	+ve	+ve	+ve	+ve

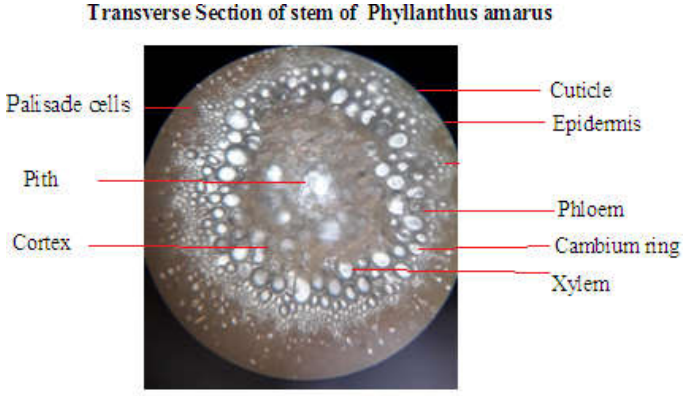

Figure-1

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