International Journal of Pharmaceutical Science Invention
ISSN (Online): 2319 – 6718, ISSN (Print): 2319 – 670X
www.ijpsi.org Volume 7 Issue 3 ǁ March 2018 ǁ PP.16-18

Morphological, cytological and medicinal studies of *Phyllanthus amarus*

Jitendra Kumar[1] and Manoj Kumar[2]
[1]*Research Scholar, Department of Botany, Magadh University, Bodh-Gaya, Bihar, India*
[2]*Associate Professor, P.G. Department of Botany, College of Commerce, Arts& Science, Patna, Bihar, India*

ABSTRACT*:*
Phyllanthus amarus is a wild plant of the family Euphorbiaceae. The distinguishing characters of theEuphorbiacae include non-woody habit, mono or bipinnate leaves, 30-60 cm high and branching annual glabrous herb. Phyllanthus amarus has the properties to inhibit the myelosuppression and can elevate the level of antioxidant enzyme. It has anti-carcinogenic activity. Plant has the property of radio protective activity. There are various experimentswhich showed its anti-inflammatory potential. Ethnobotanical survey about the plant and inquiries from practicing Unani doctors and Ayurveda experts reveals that different parts of the plant, including whole parts of plants are used in different diseases. In present paper the morphological, cytological and medicinal properties of Phyllanthus amarus were studied by sample collecting from different area of Bihar. Cytological study is done by squash preparation and photochemical variation conducted by chromatography separation and spectroscopy.

KEY WORDS:*Phyllanthus amarus, Euphorbiaceae, myelosuppression, squash preparation, chromatography and spectroscopy.*

Date of Submıssıon: 28-02-2018 Date of Acceptance: 16-03-2018

I. INTRODUCTION:

*Phyllanthus amarus*is a wild plant of the family Euphorbiaceae, which is distinguished by cahracters like non-woody habit, mono or bipinnate leaves. Phyllanthus means "Leaf and flower" and named so because of its appearance where flower, fruit and leaf appears fused. *Phyllanthusamarus* plant is 30-60 cm high and branching annual glabrous herb. *Phyllanthus amarus* bears leaves on branchlets, with subsessile and round base. The flowers of *Phyllanthus amarus* are yellowish, whitish or greenish. Male flower in groups of 1-3 where and female are solitary. Fruit of *Phyllanthus amarus* are depressed, globose, with smooth capsule present under beneath the branches and seeds are trigonous pale brown (Adeneye et.al.,2006). The Cytological study is done by squash preparation. Collection of sample from different area fixed in aceto-alcohol and stained with aceto-carmine, to observe chromosome number and chromosomal behaviors of sample (Etta, 2008, Harikumar et. al., 2009).

Phyllanthus species was collected by extensive field trips in various parts of Bihar. Identification was confirmed with the help of important references on Indian medicinal plants (Kirtikar and Basu, 1994),.For medicinal properties and chemical analysis chromatography of leaf extract taken for screening the sample of the plants.Qualitativephyto-chemical screening of all the selected samples of *Phyllanthus amarus* showed the presence of alkaloids, carbohydrates, phytosterols, saponins, phenols, tannins, falvonoids, terpenoids, phlobatannins, protein and free amino acids in this experiment. These all alkaloids exhibit very important medicinal properties, according to many researches (Bandopadhyaet. al., 2000, Bhattacharya and Bhattacharya, 2003; Huang el.al., 2003).

II. MATERIALS AND METHODS:

Phyllanthus amarus belongs to family Euphrobiaceae was selected for the present study*Phyllanthus amarus* plant has been widely distributed as a weed in cultivated and waste land in India.Distribution of plant in worldwide specially in Philiphines, Cuba, Nigeria and other country. In India,*Phyllanthus amarus* is found in tropical and subtropical region. *Phyllanthus amarus* is major found in South Indian states,Madhyapradesh,Bihar,Uttarpardesh, Uttarakhand etc. *Phyllanthus amarus* plant is widely distributed as a weed form in cultivated land, road side, railway track side etc.The plant samples were collected and observed by extensive field trips in different location of Bihar. All the observations and field data were noted out. With the help of important reference, Indian Medicinal Plants (Kiritkar and Basu, 1994), the identification was conformed. Voucher specimen of each plant sample was dry-mounted, photo graphed and preserved for future reference.

Fig: Dorsal surface of leaves

Fig: Ventral surface of leaves

Specimen of *Phyllanhus amarus* were collected from the sandy soil (River bank), cultivated land (crop field) and waste land (Road Side). In each sample, 10 replicas of the particular plant parts from six plants, each from respective populations were taken for further experimental analysis. For cytological study root tips and floral buds were fixed in 1:3 aceto alcohol solutions. Buds are stained with aceto-carmin and squash preparations were made. Cytological study ofthe different sample of plant from different places have no more difference were observed. They all have the similar chromosome number chromosomal behaviors and karyotype.

For medicinal properties and chemical analysis, chromatography of leaf extract was taken for screening of the samples of plants. The other method adopted was spectroscopy of the extracts. These two routine screening tests were taken to find out. However no any qualitative differences exist in respect to chemical component of the leaf of plant from different places. Leaves of *Phyllanthus amarus* have many phytochemical componenets.The phytochemical components of *Phyllanthus amarus* leaves were screened using standard method described by Harbrone. The leaf extract was screened for alakloids, flavonoids, saponins, tannins, steroids, lignins, glycosides, terpeniods, polyphenols, coumarins and reins.

III. RESULT AND DISCUSSION:

Present reading taken randomly selected mature plants parts in population. Present analysis of variance of plants on the basis of morphological characters, i.e. plant height, leaf length, number of pairs of segments per leaf length. As regard the morphology did not show any conceivable difference.In Cytological study there is no more differences and variation were found in number and structure of chromosome. Staining behaviors of sample of various places have not shown any difference. It show the almost concern to fertile and sterile pollen grains. In phytochemical study several bioactive molecules, such aslignans, phyllanthin, hypophyllanthin, flavonoids, glycosides and tannins, have been identified in the extracts of *Phyllanthus amarus*. Presence of secondary metabolites and carbohydrates in *Phyllanthus amarus* suggests that this plant is one of the potential sources of drugs, which could be used for the preparation, formulation of medicine to cure various disease, suggested by Kapoor (2001) and Igwe et al (2007). Similarly several compounds such as alkaloids, tannins, falvonoids, lignans, phenols and terpenses have also been isolated and identified in *Phyllanthus amarus* have been shown to possess anticeptive action.*Phyllanthus amarus*is not reputed to be a medicianl plant but it is traditional Unani and Ayurveda medicine system.In Indian ayurvedic system *Phyllanthus amarus* is used for cure of stomach, genitourinary system, liver, kidney and spleen problem,. It is bitter, astringent, stomachic, diuretic, febrifuge and antiseptic. The whole plant is used for treatment of gonorrhea, menorrhagia, gastropathy, diarrhoea, dysentry, inter-mittent fever, scabies, unclers and wounder.

IV. CONCLUSION:

Morphological, cytological and medicinal studies of *Phyllanthus amarus* revealed itsecological and medicinal importance. Thepresent paper facilitate more information concerning this small and herbaceous weed to enhance the next step of knowledge of its chemical value, through chromatography and spectrophotoscopy methods, after evaluate the chemical compound of its medicinal properties. In the present time many antibiotics may not be effective on many pathogens because of many reasons like, mutation, and they may develop

antibiotic resistance for the particular antibiotics. Hence, there is an urgent need of developing a new generation compounds which may be plant derivatives, have no side effects, and most effective for pathogens.

REFERENCES:

[1]. Adeneye AA, Amole OO, and Adeneye AK. Hypoglycemic and hypocholesterolemic activities of the aqueous leaf and seed extract of *Phyllanthusamarus* in mice. *Fitoterapia.* 2006, 77:511-514.

[2]. BandyopadyaSparks SC and Pakrashia A. The role of antioxidant activity of *Phyllanthuselimbica* fruits on prevention form indomethacin induced gastric ulcer. *J. Ethnopharmacol*.2000, 70(2):171-176.

[3]. Bhattacharyya SL and Bhattacharyya R. Establishment of Phyllanthusamarusroot clone with significant activity against bovine viral diarrhoea virus. *Current Science*.2003,84:529-533.

[4]. Etta,H.Efffects of *Phyllanthusarnarus*on litter traits in albino rats.*Sci. Res.Essay*.2008,3:370-372.

[5]. Harikumar KB, Kuttan G., Kuttan R. Inhibition of viral carcinogenesis by *Phvllanthusamarus*.*Integrative Cancer Therapies*, 2009,8(3):254-260

[6]. Huang RL.,Huang YL, OuJC,Chen CC, Hsu FL and Chang C. Screening of 25 compounds isolated from Phyllanthus species for anti-human Hepatitis B virus in vitro. *PhytotherapyResearch*.2003,17:449-453.

[7]. Igwe CU., Nwaogu LA and UjuwonduCO.Assessment of the hepatic effects, photochemical and proximate compositions of *Phyllanthusamarus. African J. Biotechnology*.2007,6(6): 728-731.

[8]. Kapoor LD,*Handbook of Ayurvedic Medicinal Plants*. CRC Press.2001.

[9]. Kiritkar and Basu. *Indian Medicinal Plants.* 4 Volumes. (2 edition), LM Basu, Kolkata. 1994

Jitendra Kumar, et. al "Morphological, cytological and medicinal studies of *Phyllanthus amarus*." *International Journal of Pharmaceutical Science Invention (IJPSI)*, vol. 07(03), 2018, pp. 16-18.