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PHYTOCHEMICAL OBSERVATION OF WHOLE PLANT OF *PHYLLANTHUS DEBILIS* KLEIN .EX.WILLD

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ABSTRACT:

Phytochemical studies of whole plant of *Phyllanthus debilis* Klein.ex.willd (Euphorbiaceae) reveals the presence of phytosterols, lignans, glycosides and absence of saponin, triterpenoids, tannins and alkaloids have been reported in this plant for the first time.

INTRODUCTION:

Phyllanthus amarus and *Phyllanthus debilis* are closely related similar looking species commonly available in India. *Phyllanthus amarus* is widely distributed throughout India, while *Phyllanthus debilis* has its distribution restricted towards southern India. These are given in stimulating sluggish liver and as a tonic (1). *Phyllanthus fraternus* is native eprobably to West Pakistan and Western India and has been introduced into Africa and West Indies. Its closest relative is *Phyllanthus debilis.* The two species though appearing distinct, are considered to be allopatric sub-species of a single species, which interfered when they come together(2). *Phyllanthus debilis* has been proved to be a better hepatoprotective than *Phyllanthus amarus* at a dose of 0.66g/kg against CCl_4 (0.7ml/kg) induced liver dysfunction(3). The efficacy of aqueous extract of leaves was compared with roots and stems of *Phyllanthus debilis* against CCl_4 induced rat liver dysfunction (4). The potential hepatoprotective action of the extract of *Phyllanthus debilis* whole plant in various solvents on CCl_4 induced liver damage rat model was investigated (5). The present investigation was undertaken to study the phytochemicals present in the whole plant extracts.

MATERIALS AND METHODS :

Plant material:

The whole plant of *Phyllanthus debilis* was collected personally from Udupi district and identified by Dr. K Gopalkrishna Bhat, Taxonomist, Department of Botony, Poornaprajna college, Udupi. The whole plants were sun dried after washing and then grinded to a coarse powder in a grinder. The coarse powder of the whole plant was subjected to soxhlet extraction with various solvents for continuous hot extraction. The extract so obtained were subjected to solvent evaporation by vacuum distillation and dried in desiccators. The dried material were tested for different phytoconstituents like glycosides, alkaloids, tannins, saponins, phytosterols, flavonoids, lignans by standard methods[6-9].

REAGENTS:

All reagents were of analytical grade and obtained from S.D.Fine chemicals Ltd., Mumbai.

METHODS:

50ml of the filtered solution of the plant powders formed the test solution.

Phytosterols

Testing solution is treated with a mixure containing minimum quantity of chloroform, 3 drops of acetic anhydride and 2 drops of concentrated sulphuric acid. The appearance of purple colour and its change to blue or green indicate presence of phytosterols.

Alkaloids:

The testing solution was treated with 2N hydrochloric acid. The aqueous layer so formed was decanted. To this layer 1-2 drops of freshly prepared Mayer's reagent or Dragenddorff's reagent was added. The appearance of whitish or Brick red precipitate indicates the presence of alkaloid.

Glycosides:

The test solutions were hydrolysed and then treated with chloroform. Equal quantity of dilute ammonia was added to the separated chloroform layer. Appearance of pink colour indicates presence of glycoside.

Tannins:

The presence of white precipitate in the test solution when treated with lead acetate solution indicates presence of tannins.

Saponins:

The test solution was vigorously shaken with distilled water. Appearance of stable foam indicates the presence of saponin.

Triterpenoids:

The test solution of the whole plant extracts were shaken with few drops of antimony trichloride. Appearance of blue precipitate

Flavonoids:

The plant extract solutions were treated with 1gm of magnesium powder and 1ml of concentrated hydrochloric acid. The development of orange colour indicates presence of flavonoids.

Lignans:

The test solution was shaken with methanol and sulphuric acid (9:1). Appearance of bluish green colour indicates the presences of lignans.

RESULTS AND DISCUSSION:

The detailed results of the phytochemical tests carried out on whole plant of *Phyllanthus debilis* are presented in table 1. In this present investigation the phytochemical test reveals the presence of phytosterol in petroleum ether and methanol extract. Glycoside was present in ethyl acetate and methanol extract. Lignan was present in petroleum and methanol extract. Flavonoids, triterpinoids, saponins, tannins and alkaloids are absent in all five extracts.

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