



Extraction and Identification of Phytoconstituents from Leaves of Some *Phyllanthus* Plants by GCMS

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Abstract

Extracts of leaves of *Phyllanthus emblica* and *Phyllanthus madarspatensis* were subjected to G.C.M.S analysis which revealed several important phytoconstituents viz 2H-pyran-2,6 (3H) –dione, 5 hydroxy methyl -2-furancarboxyaldehyde, γ -sitosterol and stigmastan-3,5-diene with high probability limit.

Key words : - *Phyllanthus emblica*, *Phyllanthus madarspatensis*, G.C.M.S analysis.

Introduction

The plants of genus *Phyllanthus* have been reported to possess variety of curative effects. *Phyllanthus emblica* has been reported to possess antiviral and antimicrobial properties¹. It has also been reported to have potential efficacy against laboratory models of disease, such as for inflammation, age-related renal disease, and diabetes²⁻⁴.

Phyllanthus amarus is an important medicinal plant species due to its antiviral properties, and thus useful against hepatitis infection. The plant is also highly valuable in the Ayurvedic system of medicine⁵. *P.amarus* is a rich source of phytochemicals such as alkaloids, astragalin, brevifolin, carboxylic acids, corilagin, cymene, ellagic acid, ellagitannins, galocatechins, geraniin, hypophyllanthin, phyllanthin, lignans, lintetralins, lupeols, methyl salicylate, phyllanthine, phyllanthanol, phyllochrysin, phyltetralin, repandusinic acids, quercetin, quercetol, quercitrin, rutin, saponins, triacontanol and tricentanol⁶.

The bark of *Phyllanthus muellerianus*, is reported to be used as a remedy for tetanus and wound infections.⁷ *Phyllanthus muellerianus* extracts are reported to possess antimicrobial⁸ properties. *Phyllanthus niruri* may possibly help prevent stone formation.⁹ *Phyllanthus amarus* root and leaf extract have been reported to show significant hepatitis C antiviral activity.¹⁰ *Phyllanthus acidus* (leaf) showed antiplasmodial activity against *Plasmodium falciparum*.¹¹ Thus literature survey reveals that the *Phyllanthus* plants are having varied medicinal properties hence it is worth experimenting to isolate, characterize the study the antioxidant properties of their phytoconstituents.

Materials And Methods

The leaves of the plants of *Phyllanthus emblica* and *Phyllanthus madarspatensis* were collected from Nagarjuna Vanaushadhi Udyan of Panjabrao Deshmukh Krishi Vidyapith, Akola Maharashtra and identified.

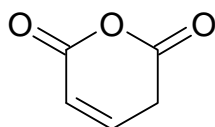
Experimental

Procedure -1) 10 gm dried coarse leaves of *Phyllanthus emblica* were boiled in 100% methanol for 10 min and evaporated in water bath at 40⁰C. The residue was collected and small amount of petroleum ether was added. Green layer of ether was discarded. The process was repeated until the extract with no green layer was obtained. The residue was collected and G.C.M.S. analysis was carried out.

Procedure -2) 10 gm dried coarse leaves of *Phyllanthus madraspentesis* were boiled in 100% methanol for 10 min and evaporated in water bath at 40⁰C. The residue was collected and small amount of petroleum ether was added. Green layer of ether was discarded. The process was repeated until the extract with no green layer was obtained. The residue was collected and G.C.M.S. analysis was carried out.

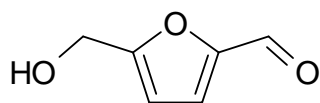
Results And Discussion:-

1) The G.C.M.S Analysis of sample extracted by procedure (1) revealed several peaks. out of these two peak are found to be predominant. The peak at 3.7 min. and 7.2 min. The peak at 3.7 min. is identified as 2H-pyran-2,6 (3H) –dione with 71.8% probability limit. When compared with mass spectrum MZ (112,84,66,55)



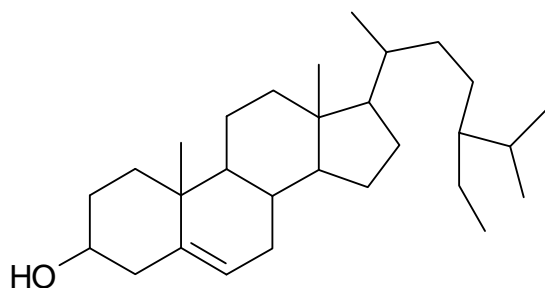
2H-pyran-2,6 (3H) –dione

The second peak at 7.2 min. is identified as 5 hydroxy methyl -2-furancarboxyaldehyde with 93.7 % probability limit . When compared with mass spectrum MZ (126,109,97,81,69,61,53)

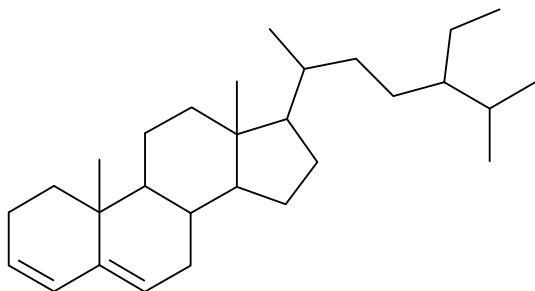


5 hydroxy methyl -2-furancarboxyaldehyde

2) The G.C.M.S. analysis of sample extracted by procedure (2) revealed several peaks. Out of these one is found to be predominant. The peak at 33.4 min is identified as γ -sitosterol with 79.2% probability limit. When compared with mass spectrum MZ (414,396,381,354,329,303,273,255,231,213,199,173,161,145,119,107,95,81,69,55)



The other peak at 23.4 min. is identified as stigmastan-3,5-diene with probability limit of 71.3%. When compared with mass spectrum MZ (396,381,354,288,255,213,159,147,105,81,67,55)



Conclusion :- The GCMS analysis of different extracts of *Phyllanthus emblica* and *Phyllanthus madarspatensis* revealed important bioactive molecules. The structures are identified by mass spectra of library search with high probability limits.

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