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ABSTRACT

Objective: The present study was carried out to characterize bioactive constituents present in n-hexane leaf extract of Alpinia purpurata (Vieill.) K. Schum.

Methods: Phytochemical screening of the leaf extract of Alpinia purpurata was carried out by using various physical and chemical methods. The crude extract was scanned in the wavelength ranging from 200-800 nm by using Ultraviolet-Visible (UV-Vis) spectrophotometers. Fourier transform infrared spectrophotometer (FTIR) was used to determine the functional groups in the plant. Gas chromatography-mass spectrometry (GC-MS) analysis was also performed to find major phytoconstituents present.

Results: The phytochemical tests showed the presence of alkaloids, terpenoids, flavonoids, steroids, cardiot glycosides, oils and fats, tannins and carbohydrates in n-hexane leaf extract of A. purpurata. In UV-Vis analysis there were sharp peaks from 2927 and 1452 cm⁻¹ due to CH and CH₂ groups. The GC-MS analysis revealed the presence of different phytochemical compounds. The strong absorption bands at 1708 and 1691 cm⁻¹ show the presence of ester carbonyl and unsaturated carbonyl groups respectively.

Conclusion: From the results, it is evident that A. purpurata has various phytoconstituents and functional groups. The investigation of the resultant active constituents will lead to the discovery of a novel botanical-drug.

Keywords: Alpinia purpurata, n-hexane, Phytochemical screening, UV-Vis, FTIR, GC-MS analysis.
The phytochemical investigation of n-hexane extract of *Alpinia purpurata* was performed on a GC-MS equipment (Thermo Scientific Co.) Thermo GC-TRACE ultra ver: 5.0, Thermo MS DSQ II. Experimental conditions of GC-MS system were as follows: DB 5-MS Capillary standard non-polar column, dimension: 30 Mts, I.D: 0.25 mm. Film thickness: 0.25 µm. Flow rate of mobile phase (carrier gas: He) was at the rate 1.0 ml/min. In the GC part, temperature programme was 70 °C raised to 260 °C at 6 °C/min and injection volume was 1 µl. Samples dissolved in chloroform were run fully at a range of 50-60 m/z and the results were compared by using Wiley Spectral library search programme.

The GC-MS spectrum confirmed the presence of various components with different retention times as illustrated in [Fig. 2]. The mass spectrometer analyzes the compounds eluted at different times to identify the nature and structure of the compounds. The large compound fragments into small compounds giving rise to appearance of peaks at different m/z ratios. These mass spectra are fingerprint of that compound which can be identified from the data library [9].

The results pertaining to GC-MS analysis of the n-hexane extract of *Alpinia purpurata* lead to the identification of a number of compounds. The various components present in the leaf extract are as follows: 11,23-Di-tert-butyl-5,17-diethoxycarbonyl-2,3,4,5,6,7,7a,8,8a,9,9a,10,11-decahydro-6H,12H-pyran-4-one, 3,7,11,15,19,23-hexamethyl-

**Fig. 1:**

**a** - UV-VIS spectrum and (b) FTIR Spectrum of n-hexane leaf extract of *Alpinia purpurata*

**Fig. 2:** GC-MS Chromatogram of n-hexane leaf extract of *Alpinia purpurata*