REVIEW WND THEORETICAL STUDIES OF ETHANOL EXTRACT OF *ABRUS PRECATORIUS* AND CHARACTERISATION

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Abstract

The objectives of the present study are to analyze qualitative preliminary phytochemical screeningand antimicrobial properties of Abrus precatoriusL . The qualitative preliminary phytochemical performed in aqueous extracts and ethanolic extracts of Abrus precatoriusL were done and the bioactive compound was indentified with TLC plant extract shows three bands for the presence of phenolic compound and R_f values were 0.4,0.45,and 0.48.The UV-VIS shows the spectra at278 and 457 nm confirms the organic chromophores and fifty compounds were identified in the ethanolic extracts by GC-MS.The major components present in the *Abrusprecatorius*were αCyclooctanedione ,Furanone , 2,4-Dihydroxy-2,5-dimethyl-3(2H)-furan-3-one , 2-Oxopentanedioic acid ,PropenylFormate ,and various other compounds were identified as low level. These phytochemical are responsible for various pharmacological actions. The structure of the identification of ibuprofen sodium using Infra-red spectroscopy were carried various spectral studies. From these studies, i do know about the knowledge of chemistry and spectroscopy. The main objective of this study is to specified and unspecified impurities using high performance liquid chromatography, Assay method of Ibuprofen methods of characterization.

INTRODUCTION

Natural compounds extracted from plants, particularly higher plants, have been suggested as alternative sources for antibiotics. The chemical features of these constituents differ considerably among different species. Because they constitute a potential source of bioactive compounds that have been useful to maintenance of health in humans. Traditionally used medicinal plants produce a variety of compounds of known therapeutic properties .The substances that can either inhibit the growth of pathogens or kill them and have no or least toxicity to host cells are considered for developing new antimicrobial drugs. In recent years, antimicrobial properties of medicinal plants are being increasingly reported from different parts of the world .It is expected that plant extracts showing target sites other than those used by antibiotics will be active against drug-resistant microbial pathogens. Moreover, numerous

plant secondary metabolites such as alkaloids, anthocyanins, flavonoids, quinines, lignins, steroids and terpenoids have found commercial application as drug, dye, flavour, fragrance, insecticide etc., Such fine chemicals are extracted and purified from plant materials by using different solvents. Nowadays most of the secondary metabolite structural diversity is generated by differentially modifying common backbone structures, with the derived compounds having potentially divergent biological activities. Differential modification of common backbone structures can alter the biological activity of a number of plant hormones and secondary metabolites including auxins, glucosinolates, gibberellins and phenylpropanoid derivatives .

In the present investigation Abrusprecatorius belongs to family fabaceae and used in traditional Ayurvedic medicine, having a important role in the treatment of conjuctivitis in various part of the world. Due to it soothing properties and are expectorant, anti-inflammatory, anti-allergic and anti cancer its leads the present study for phytochemicals analysis in leaves. The obtained phytochemicals were analysed for the TLC,UV-VIS , GC-MS techniques.

MATERIALS AND METHODS:

The 1H & 13C NMR spectra were recorded on a BRUKER 400 MHz NMR spectrometer using DMSO as solvent. the space temperature Fourier transform infrared spectra of 2M5NA were recorded within the range 400-4000 cm-1 at a resolution of ±5 cm-1 employing a BRUKER spectrophotometer equipped with a LiTaO3 detector, a KBr beam splitter, a He-Ne laser source and a boxcar atomization used for 250 averaged interferograms collected for both the sample and therefore the background. High performance liquid chromatography. an appropriate HPLC instrument equipped with UV detector.

RESULT AND DISCUSSION

Phytochemical Analysis:

Total Impurities : 0.677 % (NMT 1.00%)

Proton NMR spectral analysis

Nuclear magnetic resonance (NMR) spectral analysis is an important analytical technique used to determine the structures of organic compounds. Figure shows that the proton NMR spectra of the molecule NMNPB, exhibits a three singlet peaks were 3.77 & 2.26 ppm (S, 3H, CH3), 1.32 ppm (S, 3H, CH) due to the presence of methyl group. The secondary amine hydrogen (NH-) signal appeared at 8.91 ppm as a sharp singlet. Two doublet peaks were observed at 7.04 ppm (d, 2H, ArH),7.76 ppm (d, 2H, ArH), due to the presence of aromatic protons of phenyl ring.. Two triplet peaks were observed at 7.12 (t, 3H, ArH) & 7.53 ppm (t,3H, ArH) in aromatic ring.

^{13}C NMR spectral analysis

Fig.7. shows the ^{13}C NMR spectra of Isradipine shows the carbon signals at 167.2 ppm in the downfield respectively due to the highly deshielded carbonyl carbon of the benzamide moiety. The peaks due to aromatic carbons appears at 21.7, 68.4, 120.4, 127.9, 131.1, 112.8, 148.4, 104.1, 150.2, 19.20 ppm in the upfield region is due to methyl carbon.

TLC analysis:

TLC analysis also suggests the presence of different kinds of phytochemicals in leaves extract. Thin layer chromatography was performed on plant extracts using different solvent systems Methanol : Water : Acetone (18:9:1) .

TLC of plant extract in choloroform reports three spots for various phytochemicals. The reported spots are separated with enough space and having various R_f values showing the presence of atleast three phytochemicals in ethanol extracts. In our study, the most suitable TLC system for analysis was shown to be Methanol : Water : Acetone (18:9:1) with the largest discriminating power. Three bands found in this method and its $R_f$values were 0.4,0.45 and 0.48. This values indicate the presence of phenolic compound.

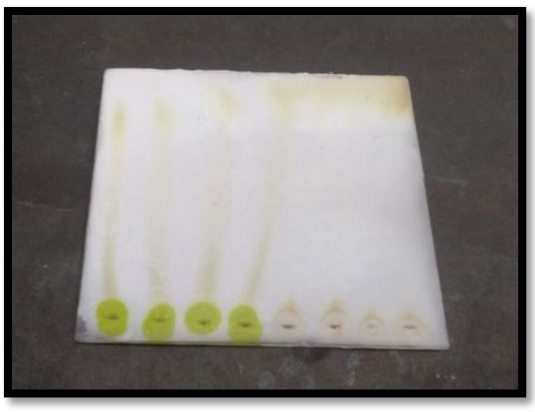

Figure :2 Thin layer cromotography

UV-VIS Analysis

The qualitative UV-VIS profile of ethanolic extract of *Abrusprecatorius*was taken at the wavelength of 300 nm to 800nm due to the sharpness of the peaks and proper baseline. The profile showed the peaks at 278 and 457nm with the absorption 4.000, and1.5088 respectively. Figure 1 shows the absorption spectrum of *Abrusprecatorius*extract and these are almost transparent in the wavelength region of 300-800 nm.

Absorption bands observed pertaining to *Abrusprecatorius*plant extract are displayed in figure 2.In the UV-VIS spectra the appearance of one or more peaks in the region from 200 to 400 nm is a clear indication of the presence of unsaturated groups and heteroatom such as S,N,O. The spectrum for *Abrusprecatorius*extract shows two peaks at positions 278 nm, and 457 nm. This confirms the presence of organic chromophores within the *Abrusprecatorius e*xtract. Nevertheless, the use of UV-visible spectrophotometery in the analysis of complex media is limitedby the inherent difficulties in assigning the absorption peaks to any particular constituents in the system.

Table:3 UV-VIS Analysis of *AbrusprecatoriusL*

S.NO	Wave Length	Absorbance
1	278.00	4.0000
2	457.10	1.5088

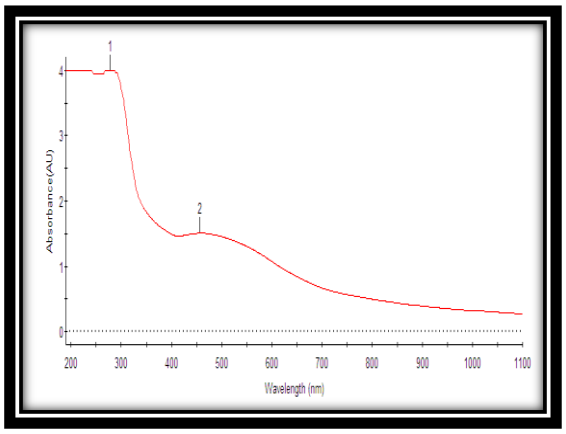

Figure :3 UV-VIS Analysis of *Abrusprecatoriusl*

These absorption bands are characteristic for flavonoids and its derivatives. The flavonoids spectra typically consist of two absorption maxima in the ranges 230-285 nm (band I) and 300-350 nm (band II). The precise position and relative intensities of these maxima give valuable information on the nature of the flavonoids. This is in accordance with the previous literature on *Acoruscalamus* (NehaSahu, JyotiSaxena 2013)

GC-MS analysis

CONCLUSION:

The Qualitative preliminary Phytochemical performed in aqueous and ethanolic extract of *AbrusprecatoriusL* were performed. The aqueous extracts showed the presence of coumarin, flavonoids, Tannin, Phenolic compound and quinone and the ethanolic extracts showed coumarin ,saponin, terpinoids,flavonoid, tannin,phenolic compou nd and quinone . The ethanolic extract contains more phytochemical when compare to aqueous extract. In the present study fifty compound were identified in ethanolic extract by GC-MS. The major components present in the *Abrusprecatorius*were α-Cyclooctanedione ,Furanone , 2,4-Dihydroxy-2,5-dimethyl-3(2H)-furan-3-one,2-Oxopentanedioic acid ,PropenylFormate ,and various other compounds were identified as low level. These phytochemical are responsible for various pharmacological actions like antimicrobial and anti-oxidant anti-inflammation,Anti-cancer, Hepatoprotective, Diuretic, Antiasthma activities .

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