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Absorbance Of Glycyrrhiza Glabra In Aqueous Medium

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ABSTRACT

In This study a sensitive precise, accurate, selective, cost effective and simple UV-visible spectrophotometric method has been used for estimation and analysis of liquorice in double distilled water.

The solution of Liquorice or Glycyrrhiza glabra was scanned with in U.V. visible rang up to (600nm) for its wave length of optimum absorbance different calibration standard of Glycyrrhiza glabra were prepared and absorbance was recoded at optimum wave length at 350nm. Beer's law is obeyed in calibration curve of concentration vs absorbance was ploted with concentration range 2-16µg/mL the observation of this analysis were verified statistically and were found to be satisfactory.

The U.V visible spectrophotometric method was successfully applied for the estimation of liquorice in the routine analytical work.

Key words: Glycyrrhiza glabra, Spectrophotometer, Soxhlet Apparatus.

Introduction:-

Plants are important source of modern drugs and plays important role in the World health. Glycyrrhiza glabra is one of must important medicinal plants blonging to the Fabaceae family or leguminose. The genus Glycyrrhiza glabra is derived from the Greek word glykas (sweet) and rehiza (root) and it also known as liquorice, Glycyrrhiza, sweet wood or liquiritiae radix or bias duex or Shirin bayan according to their native countries but it is now also found in India. It extract are used in pharmaceutical and food industries[1]. It is widely used in the treatment as peplic ulcers, gastro intestinal problems, respiratory infections arthritis and tumors in folk medicine. Its root is employed to prepare a tea that is an excellent thirst quencher [2]. Mostly it is used is food industries as additives such a sweetening agent[3]. Liquorice is an source of amino acid, proteins, Polysaccharide, sugars, mineral salts Like Phosphorus, calcium, Potassium, sodium, magnesium, silicon, selenium, zinc, manganese, copper and pectin, resins Sterols gums starches.

Oestrogens, tannins, phytosterols, coumarins, vitamins and glycosides have been reported[4] Triterpenes, saponins and flavonoids[5] components of Liquorice were used as antiviral[6], anticarcinogenic[7], Antimicrobial[8], Antioxidant[9], Neuroprotective[10], Sedative[11], Antidepressive[12], Skin effect[13], Osteogenic activity[14].

Several research workers have been used different method for the determination of liquorice and other herbs these methods include Fluorescence microscopy[15] HPLC[16]HPLC coupled to mass spectrometry [HPLC-MS][17], Fluorometric[18-21], Solid Phase and extraction[22], U.V spectroscopy[23-25],

An Attempt was made to develop a accurate, simple, rapid, selective spectrophotometer method The determination Absorbance of Glycyrrhiza glabra in aqueous medium.

Materials and Methods:

All the Chemicals and glassware used in the study of analytical grade and Brosil respectively. The analysis of Liquorice has been done in double distilled water by Soxhlet and spectrophotometer – 105.

Extraction Procedure:

The plant samples collected without any infection as per the standard procedure. The collected plant material were first washed in water then washed with distilled water after that it is dried in air at room temperature for 6 days. Then plant material Cursed into fine used into fine powder with help of Pestle and mortar and keep into container. Then the Liquorice was extracted with Et_20H for 6 hours (approximate 8 cycles) in a Soxhlet apparatus after removal of Ethyl alcohol get the dried powder of Liquorice extract.

Selection of Detection Wave Length:

To determine the optimum wavelength (λmax) of liquorice 20µg/mL of working standard solution was prepared in double distilled water and examine U.V region 340-385nm used as blank. The observation of liquorice showed maximum absorbance 350nm that wave length select for estimation of liquorice.

Preparation of stock solution:

Liquorice 20µg/mL standard solution was prepared by adding precisely weighed 20mg of liquorice extract powder to 100ml volumetric flask and make up the solution with double distilled water Fig.-1 shows the spectrum graph of liquorice

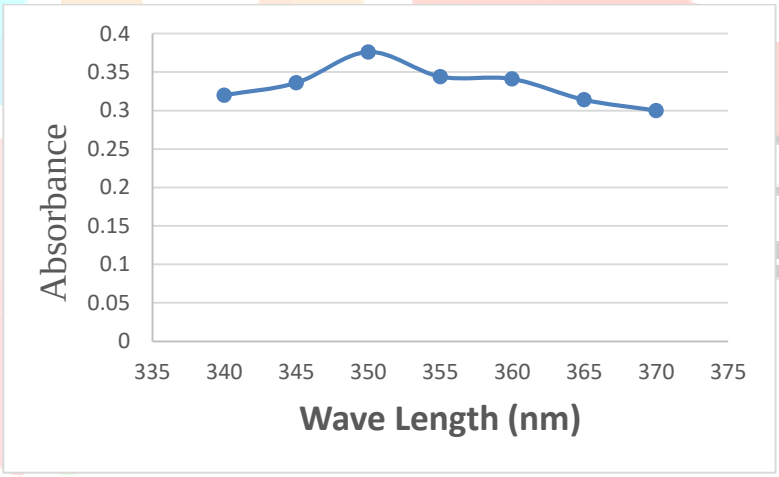

Fig. - 1 U.V. Spectrum of Liquorice in double distilled water

Preparation of celebration curve:

Calibration curve was obtained over a concentration range 2-16 µg/mL for liquorice. This curve shown in fig.-2 and celebration data is shown in table1.

Table-1

Calibration data of liquorice in double distilled water

S.No.	Concertation g/mL	Absorbance
1	2	.294
2	4	.297
3	6	.300
4	8	.301
5	10	.304
6	12	.305
7	14	.309
8	16	.314

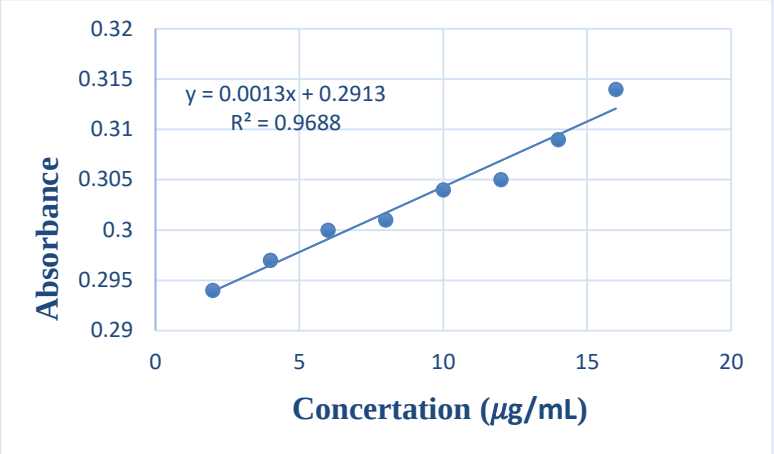

Fig – 2 Calibration Curve of liquorice in double distilled water

Result and Discussion:

Now start the discussion with overview of the combination of different analytical method of generate the analytical platform for the estimation and characterization of liquorice. In this method we follow the analytical steps. Plant material directly derived there from and the spectra of liquorice was scanned three times in the region between 340 – 385nm.

The liquorice shows maximum absorbance 350nm which was selected as the detection of wavelength the result shows clearly the absorbance of liquorice was found to be linear in the increasing range of concentration 2-16µg/mL with a good correlation which showing table-1 and fig. 2.

The study obsorbed that the regular intake of liquorice work as antioxidant [26], Antitissue and expectorant activity [27], Anti-Inflammatory [28], Antimicrobial [29], Arti Ulcerative [30], Anticarcinogenic [31], Skin effect [32], Antiviral [33] and neuroprotective activity [34].

Liquorice is common plant that has been used medicinally by different Countries.

Conclusion:

The present study emphasizes of liquorice multifaceted benefits. The study simple economical U.V. visible spectrophotometric technique has been use for the quantitative estimation of liquorice in its API form to and this techniques focused on the quantification of liquorice in routine analysis,

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