



Spectroscopic Study Of Chamomile In Distilled Water

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ABSTRACT

The modern method of analysis are essential for qualitative and quantitative study of medicinal herbs. In present study a simple precious, sensitive, selective, accurate UV spectroscopic method has been developed for the determination of chamomile in formulation shows λ_{max} at 390nm.

Beer's Lambert law was found over a contraction range 1-8 $\mu\text{g/L}$.

The observations of this spectroscopic study were verified statistically and were found to be satisfactory. The method was found to be validated and can we used for the routine analysis of chamomile and other herbs.

Key words: Chamomile, UV-Visible spectrophotometer, Absorbance

Introduction:

German chamomile (*Matricaria Chamomilla*) has been largely used for their medicinal persases^[1]. It is known to contain different class of Biological active Compounds including essential oil and Polyphenols. The main component of chamomile are the terpenoids α -bisabolol and its oxide, azulenes chamazulene and acetylene derivatives^[2-3]. The wide use and medicinal properties has made chamomile popular in the form of tea.

Chamomile is known as anti-inflammatory^[4-5] anti diarrhea^[6] antioxidant^[7] anticancer^[8] anti allergic^[9] anti-microbial^[10] neuro protective^[11] and it improves cardiac health^[12].

Several researcher have used different method and instrument for the study of Chamomile and other herbs and reported different components of chamomile which were used as medicine for no of diseases, Include HPLC^[13], Fluorometric^[14-16] and UV Spectroscopic method have been reported.

An attempt was made to develop a simple rapid, precise and accurate method for the determination the concentration of herb chamomile in Distilled water

Materials:

Chamomile, visible spectrophotometer – 105, Distilled water, measuring flask, Soxhlet apparatus etc.

Selection of Detection wavelength:

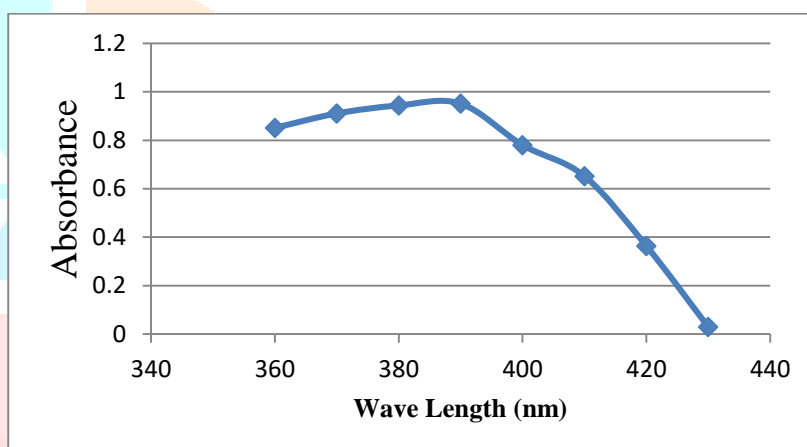
To determine the optimum λ_{max} , chamomile 25 $\mu\text{g/mL}$ of working standard solution was prepared in Distilled water and scanned in visible spectrophotometer in UV region 340-650nm use as blank the observation showed maximum absorbance of 390 nm that wavelength select for the estimation of chamomiles.

Preparation of extract:

The extract of chamomile prepared in pure ethyl alcohol with help of Soxhlet apparatus.

Preparation of stock and standard solution:

25 $\mu\text{g/mL}$ standard was prepared by adding precisely weighed 2.5mg of chamomile powder to 100mL volumetric flask and make up the solution with Distilled water Fig. shows the overline spectrum graph of chamomile.

**Fig.1**

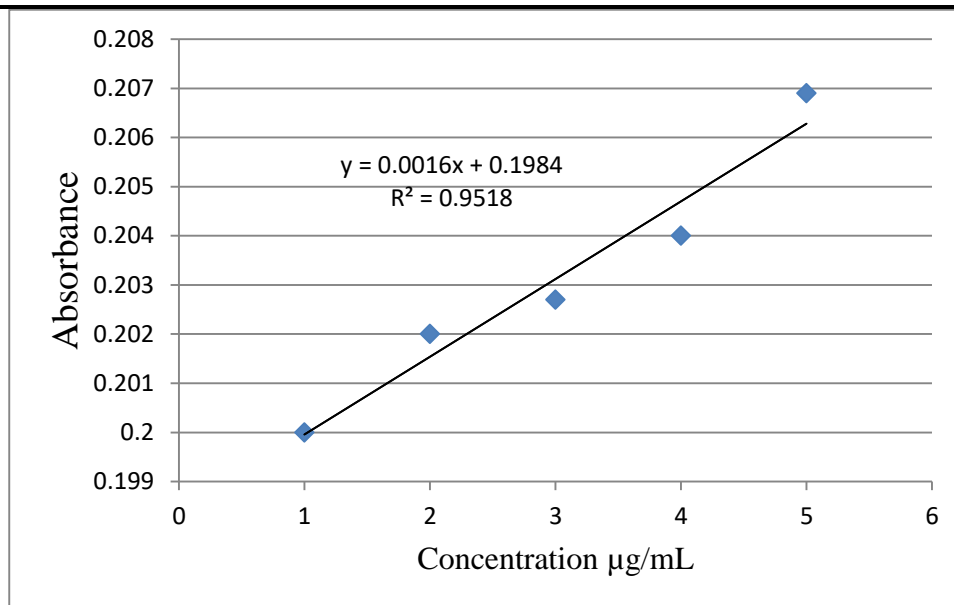
UV Spectrum of chamomile in distilled water

Preparation of Calibration curve:

Calibration curve was plotted over a concentration range of 1-8 $\mu\text{g/mL}$ for chamomile. Calibration curve shown in fig. 2 and calibration data is shown in table. 1

Table – 1**Calibration data of Chamomile in Distilled water**

| S.N. | Concentration ($\mu\text{g/mL}$) | Absorbance |
|------|------------------------------------|------------|
| 1 | 1 | .2000 |
| 2 | 2 | .2020 |
| 3 | 3 | .2027 |
| 4 | 4 | .2040 |
| 5 | 5 | .2069 |
| 6 | 6 | .2125 |
| 7 | 7 | .2132 |
| 8 | 8 | .2139 |

**Fig.2****Calibration curves of chamomile in Distilled water****Result and Discussion:**

The spectra of chamomile was scanned in the region 340-650nm.

Chamomile shows maximum absorbance at 390nm which was selected as the detection of wavelength. The Results shows the absorbance of chamomile was found to be linear in the increasing range of concentration 1-8 $\mu\text{g/mL}$ with a good correlation which shown in table-1 and Fig-2

This study suggested that intake of chamomile as medicine has been highly valued to prevent and relieve in various gastrointestinal disturbances including Flatulence, indigestion, diarrhea, anorexia motion sickness, nausea and vomiting [20-21].

Chamomile to used as antioxidant, hypocholesterolemic, antiparasitic, antiaging properties [22-24].

Preclinical studies promising inhibitory effect of chamomile in skin cancer [25]

The aqueous and methanolic extract obtained from chamomile exhibit anti proliferative and apoptotic activity in various human cancer cell with minimal effect on normal cells.

Conclusion:

Simple economic UV-visible spectrophotometric Techniques has been used for the quantitative determination of Chamomile and the study targeted the quantification of chamomile in routine analytical work.

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