

IDENTIFICATION OF CELLULAR COMPONENTS OF MEDICINAL PLANTS USING FTIR

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Abstract. FTIR spectroscopy was used to identify the cellular components of the medicinal plants of *Mimosa pudica* and *Caesalpinia pulcherrima*. FTIR spectroscopy is proved to be a sophisticated instrument to analyse the components of the plant cells. The cellular constituents in the leaves and stem of these plants were monitored for the qualities of medicinal applications. Various functional groups present in the medicinal plants were identified. The results indicate that plants contain carotenoids, polysaccharides, carbohydrates, and glycogen.

Key words: FTIR, functional groups, cellular components, medicinal plant.

INTRODUCTION

Infrared (IR) spectroscopy has the potential to provide biochemical information without disturbing the biological sample. Consequently, the spectroscopic study of biological cells and tissue is an active area of research, its primary goal being to elucidate how accurately infrared spectroscopy can determine whether cells or tissue are damaged. Fourier transform infrared spectrometers, with their high signal-to-noise ratio and high precision in absorbance and wave number measurements, have caused a resurgence of interest in the use of infrared spectra for identification of biomolecules. FTIR is one of the most widely used methods to identify the chemical constituents and elucidate the compounds structures, and has been used as a requisite method to identify medicines in pharmacopoeia of many countries. Owing to the fingerprint characters and extensive applicability to the samples, FTIR has played an important role in pharmaceutical analysis in recent years [3, 8, 10, 12]. Recently, spectroscopy has emerged as one of the major tools for biomedical applications and has made

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