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CRITERIA 3

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Polymer composites for pH sensors



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8.1 Introduction

The pH range in the healing process is a critical indicator of the healing status of chronic wounds and should be measured regularly. Because many chemical processes are pH dependent, it is common practice in labs, hospitals, and industry to monitor the pH of solutions on a continuous basis [1]. Despite the fact that the glass bulb pH electrode is a well-established instrument in the measurement of pH, there are several drawbacks to using this particular type of electrode. Because of alkaline error and dehydration, glass pH electrodes do not produce correct data at extremely high and extremely low pH values, respectively, and are thus not recommended [2]. Preparation and handling of the electrode are also important both before and after usage. Discovery of novel nanosensors may aid in the advancement of pH measurement techniques and the alleviation of current difficulties. Measurement of the healing process of chronic wounds is a new concept. In contrast to healthy skin or healing acute wounds, which have a slightly acidic pH (5.5-6.5), infected chronic wounds frequently have pH values greater than 7.4 as a result of the alkaline by-products produced by growing bacterial populations [3]. As a consequence of the uneven vascular pattern of carious lesions, infection can spread in a heterogeneous manner across the wound bed, resulting in significant pH fluctuations across the afflicted region. Despite the fact that conventional pH microelectrodes may be used to record wound pH values, they are brittle and only offer single data point readings, restricting their usefulness for 2D cartography and real-time remedial feedback applications. Instead, a more realistic approach would be to utilize a foldable array of pH detectors that can orthogonally wrap around the wound and provide a map of pH values, which would disclose the position and intensity of bacterial infections on the wound. The downsizing of pH detectors and the manufacturing of these devices on flexible substrates have both been vigorously pursued [4]. Potentiometric or ion-sensitive field effect transistors (FETs) have been the most common types of these devices. This type of product is manufactured on a variety of polymeric substrates, including polyimide, parylene, and



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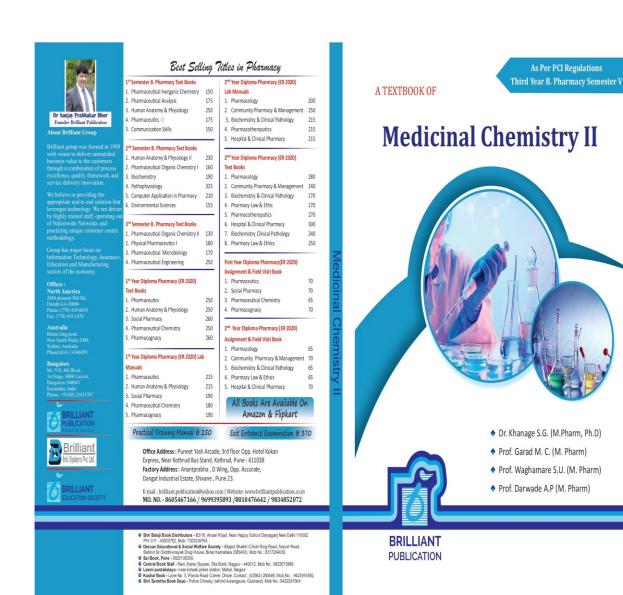




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Chapter 8

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A Brief Overview on Chamomile

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ABSTRACT

Chamomile (Matricaria chamomilla L.) is a popular spice and herb used all over the world. They include flavonoids and hydroxycinnamates, both of which have the potential to benefit human health. This article provides a brief overview of the therapeutic benefits, as well as botany and cultivation practices. Because chamomile has a wealth of natural products, information on the chemical elements of essential oils and plant parts, as well as their pharmacological effects, is provided. Chamomile is primarily used as an anti-inflammatory and antiseptic, as well as an antispasmodic and mild sudorific. Chamomile preparations are widely used to treat a wide range of human problems, including hay fever, inflammation, muscular spasms, menstrual disorders, sleeplessness, ulcers, wounds, gastrointestinal disorders, rheumatic pain, and hemorrhoids. In children, there are rarely side effects. Children who are allergic to ragweed, asters, or chrysanthemums should avoid chamomile. According to the researchers, the pharmacological activity of German chamomile is primarily related to its essential oils. Chamomile's active ingredients can be altered by environmental factors and circumstances.

Keywords: Matricaria chamomilla; chamazuline; anti-inflammatory; asteraceae.

1. INTRODUCTION

Herbal medicines have a rich history of traditional use and are widely used in developing countries' basic healthcare systems [1-5]. The term "herbo" refers to plants, whereas "some" refers to cells. Phytochemical and phytopharmacological science has proven the composition, biological activity, and health-promoting advantages of several plant products throughout the previous centuries. Herbal medicines have been used for millennia, and their popularity is growing in both western and eastern societies. According to the World Health Organization (WHO), up to 80% of the world's population still relies on herbal medications.

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