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Bio-Polymer Chitosan and Corn Starch with Extract of Hibiscus Rosa-Sinensis (Hibiscus) as PH Indicator for Visually-Smart Food Packaging

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Abstract

This study is focusing on the presence of pigments called anthocyanin in hibiscus, can be used as pH indicator as the pigments react with Off ions before changing its color depending on the acidity or alkalinity of the surroundings. Hence, a system for pH monitoring based on chitosan, corn starch and phytochemical extract from Hibiscus rosa-sinensis (hibiscus), all inexpensively obtained from renewable sources is developed. Chitosan, corn starch and hibiscus extract were used to produce biopolymer pH indicator for smart food packaging. The system is then characterized by using FT-IR, as well as light microscopy. In order to validate the use of this system as a meat spoilage detection sensor, application tests were conducted with chicken breasts. The results show that the system has good optical and morphological properties and is very sensitive to pH variations. During the application test, the system visually indicated pH changes. This shows a clear response to pH variation of the samples. Therefore, it has potential to be used as a visual indicator of the storage and consumption conditions of food.

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