

**Synthesis, Characterization and bio medical Applications of Spinach loaded Sodium  
Alginate/Gelatin Composit Film**

A THESIS SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF

**Master of Science**

In

**Chemistry**

By

**KUNJ MAKADIA**

Under The supervision of

**Dr. SONAM AHUJA**



**DEPARTMENT OF CHEMISTRY  
PARUL INSTITUTE OF APPLIED SCIENCES,  
PARUL UNIVERSITY, LIMDA-391760, VADODARA, GUJARAT, INDIA**

## **1. Abstract**

Alginate and gelatin blend fibers were prepared by spinning their solution through a viscose-type spinneret into a coagulating bath containing aqueous  $\text{CaCl}_2$  and Methanol. The structure and properties of the blend fibers were studied with the aid of FT-IR Spectroscopy and swelling test. The structural analysis indicated that there was strong interaction and good miscibility between alginate and gelatin molecules resulted from intermolecular hydrogen bonds. The effect of different solvent extract of *Spinacia oleracea* on some urinary tract pathogens in vitro. The well diffusion method was used in determining the antibacterial efficacy of plant extract against test microorganisms. Here three polar solvents namely, water, methanol, ethyl acetate. These activities are useful for treating diseases and extracting drugs from spinach leaves.