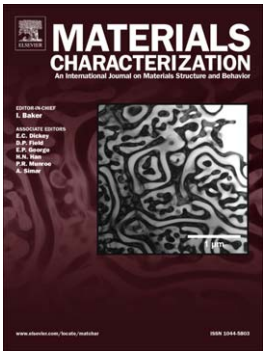


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# Preparation of the egg membrane bandage contained the antibacterial AgNPs

Jin Zhang[1], Guangwen Duan[1],Yunzhi Fu[*1, 2] , Yucang Zhang[*1]

[1]Department of Materials and Chemical Engineering, Hainan University, 570228, Haikou, P. R. China

[2]Key Laboratory of Colloids and Surfaces, Institute of Chemistry, Chinese Academy of Sciences, 100081, Beijing, P. R. China

Corresponding Author. Tel: +86-898-66279225; Fax: +86-898-66279225.

E-mail: yzhfu@hainu.edu.cn

**Abstract**

We developed a facile and low-cost method for the egg membrane bandage contained the antibacterial Ag nanoparticles (AgNPs). In preparing AgNPs, Aloe leaf extract (ALE) acts as both reacting agent and stabilizing agent. First, AgNPs are prepared in ALE and then deposited on egg membrane bandage, forming a novel egg membrane bandage contained AgNPs. Ultraviolet visible absorption spectroscopy (UV-vis), transmission electron microscopy (TEM), and X-ray diffraction (XRD) analysis confirmed the average size of AgNPs around 20nm. FTIR observation showed the estimation of two kinds of binding sites between ALE and ALE with AgNPs.

The concentration of $AgNO_3$, temperature, and reaction time played key roles and Polyvinyl Pyrrolidone (PVP) played promotion role in preparing AgNPs. The antibacterial activity of the nano-sliver against *E.coli* and *S.aureus* was studied because of their potential applications in silver-contained antibacterial materials.

**Key words:** AgNPs ; ALE; eggshell membrane; antibacterial properties

## 1. Introduction

Nano-sliver has attracted tremendous interest in many areas due to their unique optoelectronic and physicochemical properties and the characteristics of their inherently quantum effect, small size effect and the great characteristics of the specific surface area, has brought exceedingly broad application prospects in the field of superconducting, antibacterial, biology, catalysis and microelectronics [1-3].

With increasing concerns of microbial infections, there is growing interest in the development of new, effective antimicrobial agents [4-10]. Various antimicrobial