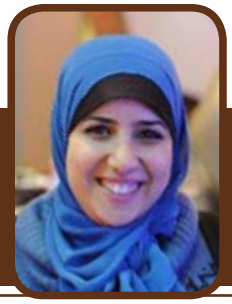
Asmaa Selim, J Food Nutr Disor 2018, Volume: 7
DOI: 10.4172/2324-9323-C5-019

EUROPEAN FOOD AND NUTRITION CONGRESS & WORLD COLLOID CONFERENCE

October 25-26, 2018
Vienna, Austria



Asmaa Selim

Budapest University of Technology and Economics, Hungary

Swelling studies of in-situ reduced Ag-NPs/ PVA nanocomposite films

In this investigation, metal-polymer hybrid nanocomposite films containing poly (vinyl alcohol) and silver nanoparticles (AgNPs/PVA) were prepared due to their potential application in various domains including separation and purification. The silver nanoparticles were generated in PVA matrix by the reduction of silver nitrate as silver ions with PVA as a reducing agent molecule over magnetic stirrer at 70-80 °C. The successful generation of silver nanoparticles in PVA matrix was confirmed by UV–Vis spectroscopy showing a single peak at around 420 nm due to the plasmonic effect of silver nanoparticles. Nanocomposite AgNPs/PVA films were characterized using scanning electron microscope (SEM), Fourier transform infrared (FT-IR) spectroscopy, and thermogravimetric analysis (TGA). The stability of the membranes in pure water, water uptake and the swelling behavior of these nanocomposites membranes in several organic solvents were reported. Comparison of the virgin and nanocomposites membranes showed that membranes based on silver nanoparticles and polyvinyl alcohol are promising for separation processes.

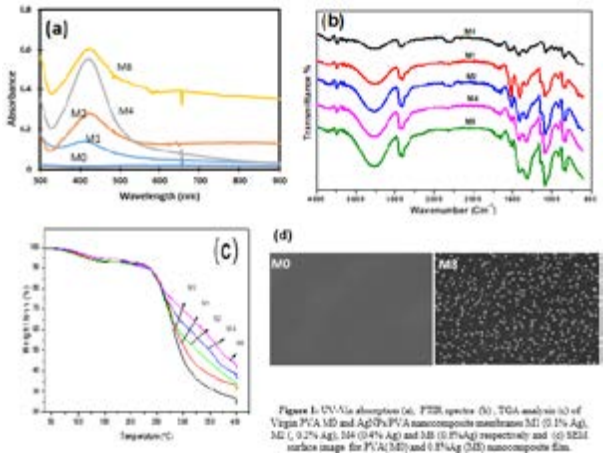


Figure 1: UV-Vis absorption (a), FTIR spectra (b), TGA analysis (c) of Virgin PVA M0 and AgNPs/PVA nanocomposite membranes M1 (0.1% Ag), M2 (0.2% Ag), M4 (0.4% Ag) and M5 (0.8%Ag) respectively and (d) SEM surface image for PVA(M0) and 0.8%Ag (M5) nanocomposite film.

Biography

Asmaa Selim is a PhD scholar at Budapest University of Technology and Economics in Department of Chemical and Environmental Process Engineering. Previously, she accomplished her master's degree under the prestigious program entitled Erasmus Mundus Masters in Membrane Engineering, majoring in Nanoscience & Nanotechnology of Membrane Engineering. Her current research work is focused on development of PVA polymeric membranes for pervaporation (Water desalination and dehydration of alcoholic solutions).

as_kh_f@hotmail.com

Notes: