

## World Congress and Expo on Applied Microbiology

August 18-20, 2015 Frankfurt, Germany

## A plant-based controlled release hard capsule for treatment of intestinal disease

Wai Wa Tang

The Hong Kong Polytechnic University, China

The aim of this work is to develop a hard capsule made from corn zein for targeted drug delivery in treatment of intestinal disease. The physical properties and the *in vitro* performance of the plasticized and crosslinked zein capsule were investigated. Oleic acid and glycerol were added as plasticizers at different ratios. Optimized plasticizing ratio of zein film was 3:1 oleic acid to glycerol having tensile strength of  $10.7\pm0.4$  MPa and elongation of  $14.4\pm2.6\%$ . The water vapor permeability of the films increased with the glycerol content due to its hydroscopic property. 5% citric acid was added as a crosslinking agent to improve the tensile strength of the capsule ( $28.6\pm1.8$  MPa). The zein capsule was made by conventional dip-coating method. Drug release from the zein capsule during 2-hour incubation in simulated gastric fluid was controlled at  $2.6\pm0.2\%$ . After transferred to simulated intestinal fluid, the release increased gradually and attained  $48.7\pm4.3\%$  at the total of 8-hour incubation time. The excellent flexibility and pH-responsive properties of zein would be beneficial for the delivery of antimicrobial peptide and protein drugs.

## Biography

Wai Wa Tang has completed her undergraduate study of Food Science and is having her MPhil study in The Hong Kong Polytechnic University.

Notes: