

## Supplementary information

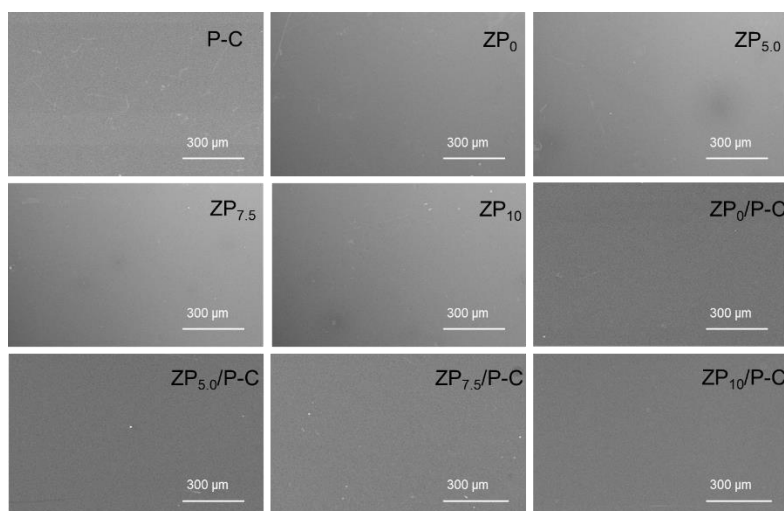
### Development of Zein-PEG400 / PVA-Chitosan Bilayer Films for Intelligent Packaging

#### *Moisture content (MC), water solubility (WS)*

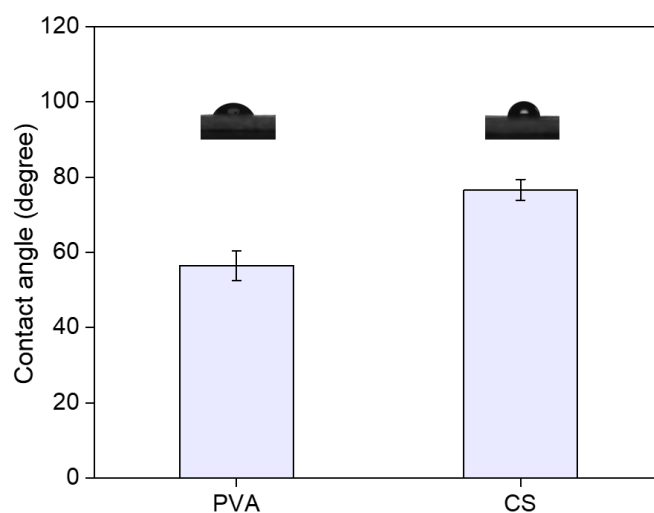
The film samples (2 × 2 cm) were initially weighed ( $W_0$ ) and then dried under vacuum at 70°C for 12 hours, after which their weight was recorded as  $W_1$ . The dried films were subsequently immersed in 50 mL of distilled water at 25°C for 10 hours. After soaking, the films were weighed following the removal of surface water, and then vacuum-dried again at 70°C for 12 hours until a constant weight was achieved ( $W_2$ ). The MC and WS of the films were calculated using the following equations:

$$MC = (W_0 - W_1) / W_0 \times 100\% \quad (1)$$

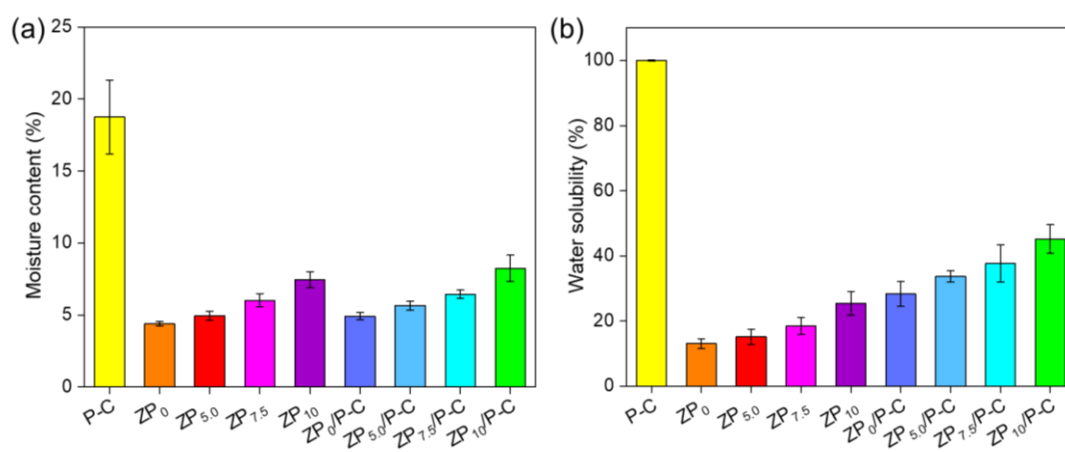
$$WS = (W_1 - W_2) / W_1 \times 100\% \quad (2)$$



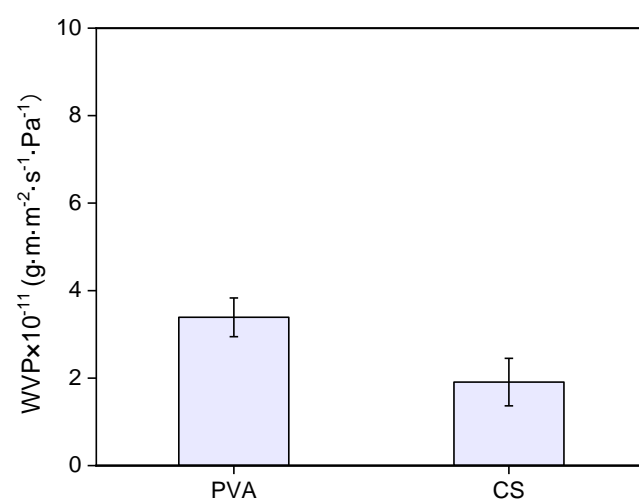
**Figure S1.** Surface SEM images of the different films



**Figure S2.** Contact angle of PVA and CS films



**Figure S3.** Moisture content and solubility of the different films.



**Figure S4.** Water vapor permeability of PVA and CS films