



## **Antimicrobial effect and application of exopolysaccharide film from *Aureobasidium pullulans* YTP6-14 with cinnamaldehyde**

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*Aureobasidium pullulans* YTP6-14, a yeast-like fungi can secrete an extracellular polysaccharide as bio-product. Exopolysaccharide (EPS) is biopolymer which consists of monosaccharide (glucose) with repeating units. It can replace synthetic polymers derived from petrochemicals in many aspects such as less environmental problems are concerned. In this study, antimicrobial property of the modified films prepared by incorporation of cinnamaldehyde (CH) into the solution of EPS that produced by *Aureobasidium pullulans* YTP6-14 and some physical properties of the film were investigated. Minimum inhibitory concentration (MIC) of CH was the same value as minimum bactericidal concentration (MBC) and minimum fungicidal concentration (MFC) for bacteria and fungi, respectively. *Staphylococcus aureus* ATCC 6538P exhibited the highest MIC value of 1.484 mg/ml while the lowest of 0.0928 mg/ml for *Bacillus subtilis* ATCC 16643. Film forming solutions contained EPS 7% w/v, glycerol 1.5% w/v and CH at various concentrations. The solutions inhibited both tested bacteria and fungi. The concentrations of CH at 24 and 30 mg/ml were selected for the preparation of EPS films. The thickness of EPS film with CH 24 mg/ml was not significantly different when compared with the film without CH as a control. The incorporation of CH did not affect film brightness but more green and yellow was observed. These modified films will be further studied for other physical properties and an application for control-release active profile.

**Keywords:** Exopolysaccharide film; Cinnamaldehyde; *Aureobasidium pullulans*