

## Screening of Total Phenolic Content of Antioxidant Thin Film from Pomelo (*Citrus grandis*) Peel

Rozaini Abdullah, Noor Safira Aina Arshad, Zarina Zakaria, Sam Sung Ting, Lee Boon Beng

**Abstract.** Recently, there has been an interest in potential of antioxidant film incorporated with natural extract. The film was produced by using chitosan in the presence of pomelo (*Citrus grandis*) peel extract. In this study, there were 3 different effects of parameter that had been screened by using 2-Level Factorial which were concentrations of chitosan, pomelo peel extract and glycerol. Meanwhile, the response that had been investigated which was Total Phenolic Content (TPC). The data were analyzed by using ANOVA to screen the parameters affecting the antioxidant activity of films. Factor B (concentration of pomelo peel extract) and AC (interaction between the concentration of chitosan and glycerol) were significant parameters in this studied. Meanwhile, FTIR spectra of antioxidant film revealed that there were interaction between functional groups of chitosan with pomelo peel extract with presence of aromatic ring C=C stretch at wavelength of  $1555.3\text{ cm}^{-1}$  and  $1410.7\text{ cm}^{-1}$ . These results suggested that chitosan films containing pomelo peel extract have potential as the antioxidant thin film, which can be used for development of antioxidant food packaging materials.

**Keywords:** 2-level Factorial, Antioxidant Thin Film, Pomelo Peel, Total Phenolic Content