

Effect of solvent and time extraction on antibacterial activity of *Acacia concinna*'s pod against *Bacillus cereus*

Nguyen Ngoc Son¹ and Patchanee Yasurin^{2*}

¹ Faculty of Food Technology, Saigon Technology University,
Ho Chi Minh City, Vietnam
E-mail: sonnguyend11@gmail.com

^{2*} Faculty of Biotechnology, Assumption University,
Bangkok, Thailand
E-mail: patchaneeYsr@au.edu

ABSTRACT: Herb extract becomes the great interesting functional ingredient. *Acacia concinna*'s pod (Som-poi pod) is a potential herb as the functional ingredient. Therefore, this study aimed to investigate the effect of extraction solvent and time on antibacterial activity of dry *A. concinna*'s pod against *Bacillus cereus*. The agar disc diffusion method was used to evaluate the antibacterial activity of *A. concinna*'s pod crude extracts using Muller Hinton Agar media (MHA). The 20 g dry *A. concinna*'s pod was extracted with 100 ml three solvents; water, 95% ethanol and hexane, for 1, 3 and 5 days at 120 rpm. Then dry *A. concinna*'s pod crude extracts was concentrated using rotary evaporator at 70°C for water, 40°C for 95% ethanol and hexane then dilute to 20 µl/ml. The results showed that dry *A. concinna*'s pod hexane crude extracts gave the highest antibacterial activity among three extraction solvents in all extraction times. While dry *A. concinna*'s pod 95% ethanol crude extracts gave the lowest antibacterial activity. The dry *A. concinna*'s pod 3 days-hexane crude extracts gave the highest antibacterial activity; 0.89 ±0.07 cm. There are no statistically significant of antibacterial activity of *A. concinna*'s pod crude extracts among extraction time in all three extraction solvents. The results indicated that only extraction solvent affected the antibacterial activity of *A. concinna*'s pod crude extracts. The broth dilution method was used for evaluate the Minimum inhibitory concentration (MIC) and the Minimum bactericidal concentration (MBC). The MIC was between 40-80 µl/ml and MBC was > 160 µl/ml. This showed that dry *A. concinna*'s pod crude extracts has active functional compounds and it can be further applied to use in food industry, pharmaceutical and cosmetic.

Keyword: *Acacia concinna*, antibacterial activity, herb, *Bacillus cereus*

INTRODUCTION

Nowadays, herbal extracts in food, cosmetic, pharmaceutical industry are growing of great interested because of their efficacy and safety. Since the ancient time, herbal extracts have been used. *Acacia concinna* (Wild.) D.C. or Som-poi is an important medicinal herbal plant in Thailand and throughout Asian countries. Its dried pods are traditionally utilized as

herbal medicine to treat many health symptoms, for example laxative, cough, antidandruff and skin diseases¹. *A. concinna*'s pods are used as main ingredient of Thai traditional holy water on the north of Thailand. *A. concinna*'s pods are a potential herb as the functional ingredient.

Therefore, this study aimed to investigate the effect of extraction solvent and time on