Research Title: Anti-bacterial activity from mangosteen rind and gac crude extract for printing textile
Researcher: Miss Yanisa Laoong-u-thai
Faculty: Engineering **Department:** Chemical Engineering **University:** Burapha

ABSTRACT

Textile is a major factor in human life in the apparel and also be used in many areas especially in medical aspect such as gauze, surgical kits and sewing thread, so they need to be in sterile conditions. But Thailand as the tropical country, this condition is suitable for growing of microorganism. So the objective of this research is applying anti-bacterial substances including crude extract from Gac with organic solvent, hexane and ethanol by coated on the color printing textile from mangosteen and gum for enhancing the efficiency of anti-microbial activity. Antibacterial activity was assessed by disc diffusion method against two bacterial strains, *Staphylococcus aureus* and *Escherichia coli*, at the concentration of 300 mg/ml of extracts. The result showed that the hexane extract from arillus showed the highest activity against *Staphylococcus aureus* follow by methanol extract from root, hexane extract from leaf and methanol extract from stem respectively. In addition, the antibacterial activity of fahk khao extracts against *Escherichia coli*, were observed from methanol extracts of stem and root while the hexane extracts didn't show activity against this microorganism. However, the silk and cotton fabrics were color printed by mangosteen and tamarin gum. The antibacterial result showed that only *Staphylococcus aureus* was inhibited. For enhancing the efficiency of anti-microbial activity, antibacterial substances were coated on the color printing textile from mangosteen and gum. The result showed no antibacterial improvement of coated textile. Additionally, this study also separated an antibacterial substant from left and arillus crude extract of *Momordica Cochinchinensis* (Lour.) Spreng by gel filtration chromatography. The result shown fraction distillation from gel filtration chromatography and antibacterial activity testing by agar disc diffusion method. By comparing bacterial concentration with McFarland standard. We can separated crude extract from left 16 fractions, and the 12^{th} fraction can resist growing of *Escherichia coli* 12^{th}, 13^{th} and 14^{th} can resist growing of *Staphylococcus aureus.* And the crude extract from arillus 18 fractions, 11^{th}, 12^{th} and 14^{th} can resist growing of both microorganisms.

Keywords : textile, antibacterial substance, gac, mangosteen, gel filtration chromatography