CHAPTER 5

CONCLUSION

This study determined the most suitable types of polymer, plasticizer and penetration enhancer for transdermal patch containing 0.5% longan seed extract. The combination of Eudragit® NE30D, squid chitosan and HEC in the ratio of 4:2:4 with propylene glycol (25%) and triethyl citrate (15%) as plasticizers and also lemon oil as an enhancer produced an appropriate transdermal patch formulation (Formulation 3C-L-E) containing longan seed extract with flexible and no residue after removal. The incorporation of longan seed extract in to transdermal patches were not affected their flexibility, strength and adhesiveness.

The selected transdermal patch containing longan seed extract (Formulation 3C-L-E) was physically and chemically stable after storage in four conditions of stability test; room temperature, cool place (4°C), hot place (45°C) for three months, and H/C cycling for six cycles.

As the developed transdermal patch acted as matrix system, the releasing pattern of gallic acid controlled by the patch fitted well to the Higuchi's model. This implied that the gallic acid diffusivity was constant. Furthermore, the addition of an enhancer also promoted the release of gallic acid from the film preparation.

The developed 3C-L-E patch is safe as no sign of skin irritation or allergic reaction that was observed throughout 72 hours in 30 volunteers and after tested by modified Draize Rabbit model. Moreover, the subject's satisfaction was assessed by questionnaire. For appearances, flexibility, easiness in use (easy to remove and easy

to adhere), feeling on use (stickiness and irritation) as well as easy to carry of the product were high satisfaction (more than 90 % ranged from ‘‘excellent’’ to ‘‘very good”). Moreover 80% of the subjects satisfied the overall of the product (ranged from ‘‘excellent’’ to ‘‘very good”). For the odor, adhesiveness (on use) and residue after removal (after use) showed more than 90%, 80% and 70% ranged from very good to good, respectively. The color of the product presented more than 80% ranged from good to fair.

In the future study, *in vivo* studies and *in vitro* gallic acid permeation should be performed to correlate with *in vitro* release data for the development of suitable controlled release transdermal patches.