Thesis Title Anticough Effect of Fresh Guava Leaves

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ABSTRACT

To serve the government policy on the development of drug from medicinal plants, the medicinal plant researches are promoted. Hopefully, the findings will be implemented in the primary health care and lead to the development of new medicinal plant drugs. Guava, one of the potential medicinal plants recommended for primary health care is selected for these studies.

An *in vivo* anticough effect of guava, *Psidium guajava*, Linn. was evaluated in white Wistar rats and guinea pigs. The animals were divided into 6 groups of each 10 animals. Group 1,2 were served as control and normal saline(NSS)-treated group; group 3-6 were injected intraperitoneally with dextromethorphan and 1, 2, 5 g/kg BW of lyophilized fresh guava leaves juice respectively. Induction of coughing in the experimental animals were made by mechanical stimulation of the tracheal bifurcation of slightly anesthetized animals, and chemical stimulation using capsaicin aerosol. Mechanical stimulation showed inconsistent results. Therefore this model is unsuitable for evaluating anticough activity. However, the doses of 1, 5 g/kg BW of guava could decrease the frequency of cough compared to the control in male rats.

Chemical stimulation with capsaicin produced cough in both animal species. Histopathological examination of trachea showed no obvious inflammation, which indicated that cough is resulted from irritating effect rather than inflammation. The dose of 2, 5 g/kg BW of guava could decrease the frequency of cough significantly from control ($P<0.01$) in both rats and guinea pigs. The percentage inhibition for 2, 5 g/kg are 33.4, 33.5 and 54.9, 37.3 in rats and guinea pigs respectively, while dextromethorphan elicited 79.9, 82.3 % inhibition.

The report on antiinflammatory and morphine like activity of quercetin prompted us to carry out the experiment on quercetin. The result showed no anticough effect a the doses of 4,8 mg/kg. TLC analysis showed no quercetin, and only quercetin derivatives are found. Therefore the anticough activity of guava were not attributed to quercetin.

In conclusion, guava leaves juice can inhibit only chemical induced cough in the experimental animals with less efficacy than dextromethorphan. The mechanism of action of guava is not known yet. Further studies are needed before promotion in primary health care as anticough.