

Thesis Title Effect of Cha-om, Chinese Bitter Gourd, Thai Bitter Gourd and Sweet Basil on the Level of Cytochrome P-450, the Activities of Aniline Hydroxylase, Aminopyrine Demethylase, Glutathione-S-transferase, UDP-Glucuronyltransferase and the in Vitro Metabolic Activation of Carcinogens in Rat Liver

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ABSTRACT

The effect of feeding of 4 vegetables commonly consumed in Thailand, namely, cha-om (*Acacia insuavis* Linn), Chinese bitter gourd (*Momordica charantia* Linn), Thai bitter gourd (*Momordica charantia* Linn) and sweet basil (*Ocimum basilicum* Linn), on the activities of Phase I activating enzymes which include cytochrome P-450 (cyt.P-450), aminopyrine demethylase (AMD), aniline hydroxylase (ANH) and metabolic activation of AFB₁ and BP and of Phase II detoxifying enzymes which include glutathione-S-transferase (GST)

and UDP-glucuronyltransferase(UGT) in rat liver was investigated. It was found that dietary cha-om had no effect on all Phase I reactions studied, while slightly increased GST activity. Chinese bitter gourd had no effect on the level of total cyt.P-450 and ANH activity but significantly decreased AMD activity as well as metabolic activation of AFB₁ and BP. However, it had no effect on GST activity but caused a reduction in the UGT activity. Interestingly, Thai bitter gourd markedly decreased AMD and ANH activities as well as metabolic activation of AFB₁ and BP while significantly enhanced the activities of GST and UGT. For sweet basil, this vegetable markedly enhanced both Phase I and Phase II metabolizing enzymes. These results indicated that Chinese bitter gourd contains compound(s) capable of decreasing some Phase I and Phase II reactions while sweet basil may contain bifunctional inducer(s). More interestingly, Thai bitter gourd contain compound(s) capable of inhibiting Phase I reactions but increasing Phase II metabolizing enzymes. Some of them may have the property of monofunctional inducer. Therefore, it may be suggested that Thai bitter gourd may have anticarcinogenic potential and it should be the first vegetable to be selected for further study on its anticarcinogenic property in experimental animals as well as to identify the responsible ingredient(s). In case of sweet basil, it may also possess anticarcinogenic potential and may be the second vegetable to be selected for further study.