

THE STABILITY OF ANTIOXIDANT ACTIVITY AND ANTIMUTAGENICITY  
OF RAW OR HEAT-PROCESSED EDIBLE EGG PLANTS (*Solanaceae* spp.)

SINEE KOKCHAROENPONG 5237410 NUFT/M

M.Sc. (FOOD AND NUTRITIONAL TOXICOLOGY)

THESIS ADVISORY COMMITTEE: KAEW KANGSADALAMPAI, Ph.D.,  
SITIMA JITTINANDANA, Ph.D.

ABSTRACT

*Solanum aculeatissimum* Jacq. (cockroach berry and yellow berried nightshade) and *Solanum melongena* L. (aubergine) were investigated on their antioxidant activity and antimutagenicity. Each sample was cut into small-thin pieces and divided into two portions; the first one was lyophilized and kept as an untreated control sample. The second portion was steamed for 2 min and lyophilized; half of it was kept as the steamed sample and the other half was fried in palm oil at 120-140°C for 10 s and served as the fried sample. Both untreated and treated samples had phenolic compounds (determined by Folin-Ciocalteu reagent) and antioxidant activities (determined by DPPH assay and FRAP assay) with different degrees of content in the first part of the investigation. Steaming or frying increased total phenolic content and antioxidant activities of samples compared with those of the raw one. In the second part of the investigation, an experimental *Drosophila* medium containing 0.58 g mixture of standard medium powder and lyophilized sample (at the ratio of 1:0.25, 1:0.5, or 1:1 w/w) mixed with 2 ml of distilled water or 20 mM urethane was prepared for mutagenicity evaluation or antimutagenicity evaluation of the sample, respectively. Three-day old trans-heterozygous larvae (*mwh flr+/mwh TM3*) were transferred to an appropriate medium. The wings of surviving flies were analyzed for occurrence of mutant spots. It was shown that none of the samples was mutagenic. All samples expressed their antimutagenicity in this experiment; the administration of each sample along with urethane to 3-day-old larvae reduced number of total induced spots per wing. The components of eggplants, possibly polyphenols, might be the inhibitors of bioactivation of urethane. It was noted that heat treatments could either decrease or increase the antimutagenicity of samples depending on types of treatment and sample varieties.

KEY WORDS: EGGPLANTS / ANTIOXIDANT ACTIVITY/  
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