

O3: EXTRACT FROM *BARRINGTONIA ACUTANGULAR* REDUCES OXIDATIVE STRESS DURING EXPERIMENTAL ANEMIA IN RATS

Saowanee Luangaram¹, Upa Kukongviriyapan¹, Veerapol Kukongviriyapan², Poungrat Pakdeecheote¹.

¹Department of Physiology and ²Department of Pharmacology, Faculty of Medicine, Khon Kaen University, Thailand.

ABSTRACT

Fruits and vegetables protect against many diseases by so far not well characterized mechanisms. One likely explanation for this effect is that dietary plants contain the antioxidants that are able to control basic cellular processes and defense against oxidative stress. Oxidative stress is pivotal in many pathological processes including hemolytic condition and reduced oxidative stress is implicated in alleviation of disease. The present study was aimed to evaluate whether extract from *Barringtonia acutangula* (*B. acutangula*), a Thai local vegetable can minimize phenylhydrazine (PHZ)-induced oxidative stress and circulatory dysfunction. Male Sprague-Dawley rats were orally administered with *B. acutangula* extract (1g/kg/day), quercetin as positive controls (50 mg/kg/day) or deionized distilled water as controls for 6 days. On the fourth day of treatments, all of studied animals were induced hemolytic anemia by a single injection of PHZ (125 mg/kg i.p.). Our results demonstrated that *B. acutangula* extract and quercetin could elevate the cellular antioxidant system by increased the intracellular concentration of glutathione, whereas plasma levels of malondialdehyde and nitric oxide metabolites were decreased in anemic rats ($p < 0.05$). Moreover, *B. acutangula* extract and quercetin significantly improved hemodynamic status of the anemic rats by increased mean arterial pressure and peripheral vascular resistance ($p < 0.05$). It is concluded that treatment of *B. acutangula* extract and quercetin could not only decreased oxidative stress, but also ameliorate the consequent effect of PHZ. Therefore, vegetable co-treatment in condition of hemolytic anemia may be proving beneficial.

Key words: *Barringtonia acutangula*, quercetin, oxidative stress, antioxidant, anemia