Pueraria mirifica (White Kwao Keur) is an indigenous herb of Thailand which possess estrogenic—like activity. Experiments were designed to study the effects of P. mirifica on lipid profile anti endothelium-dependent vascular response in hypercholesterolemic rats and ovariectomized rabbits. Part I: 30 male Wistar rats were randomly assigned to three groups. The rats were fed normal diet serve as control group. The other 2 groups, rats were fed diet containing 1% cholesterol (cholesterol group) and 1% cholesterol supplemented with P. mirifica 100 mg/kg/day (cholesterol+P. mirifica group). After 90 days, blood samples were obtained for the evaluation of total cholesterol, triglyceride, HDL-C and LDL-C. The aortas were removed, cut into ring and measured for isometric tension. Total cholesterol, LDL-C, HDL—C and triglyceride were significantly decreased in the cholesterol+P. mirifica group compared with cholesterol group (p<0.05). In addition, supplementation with 100 mg/kg/day P. mirifica significantly improved HDL/LDL ratio. There was no significant different in the contraction response to noradrenaline (10^{-9} to 10^{-4} M) in all experimental groups. The endothelium—dependent relaxation to acetylcholine (10^{-9} to 10^{-4} M) was impaired in the cholesterol group and restored in cholesterol+ P. mirifica group, whereas, endothelium—independent relaxation to sodium nitroprusside (10^{-9} to 10^{-4} M) was not significantly different between all experimental groups. Part 2 : 20 ovariectomized (OVX) rabbits were randomly assigned to four groups. The normal rabbits were orally administered with double distilled water. The other 3 groups, OVX rabbits were orally administered with double distilled water (ovariectomized group), 17β-estradiol 4 mg/kg/day (OVX+Estrogen group) and P. mirifica 100 mg/kg/day (OVX+P. mirifica group). Blood samples were obtained every 4 weeks for analysis of blood biochemistry and serum lipid parameters. After 90 days, the aortas were measured for vascular function and pathologic examination of endothelial cell. Total cholesterol, LDL-QHDLC and triglyceride were not significantly different between all group. There was no significant different in the contraction response to NA and the endothelium—independent relaxation to SNP, whereas, endothelium-dependent relaxation to Ach was impaired in ovariectomized group and improved in OVX+Estrogen and OVX+P. mirifica group. Maintained pathologie of endothelial in
OVX+Estrogen group and OVX+P. mirifica group as control. In contrast, vessel from cholesterol group demonstrated a loss of endothelial cell. Adherent of a large number of WBC are clustered on the surface of the endothelium. These results indicated that P. mirifica had beneficial effects on cardiovascular system in cholesterol—fed rats by cholesterol lowering effect and maintained endothelial cell and vascular function in OVX rabbits.