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Effects of Silkworm (*Bombyx mori* L.) Powder on Oxidative Stress and Membrane Fluidity in Liver of SD Rats

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This study was designed to investigate the effects of silkworm (*Bombyx mori* L.) powder on oxidative stress and membrane fluidity in liver membranes of rats. Sprague-Dawley (SD) male rats (160±10g) were fed basic diet (control group), and experimental diets (SWP-200 and SWP-400 groups) added 200 and 400 mg/kg BW/day for 6 weeks. A significant differences between liver mitochondria and microsomes of SWP-200 and SWP-400 groups could not be obtained. Membrane fluidities were dose-dependently increased (14.8% and 28.5%, 20.0% and 29.9%) in liver mitochondria and microsomes of SWP-200 and SWP-400 groups compared with control group. Basal oxygen radicals (BOR) in liver mitochondria and microsomes were significantly inhibited (15.2% and 21.7%, 12.6% and 18.6%, respectively) by SWP-200 and SWP-400 groups compared with control group. Induced oxygen radicals (IOR) in liver microsomes were significantly inhibited (15.5% and 16.1%, respectively) by SWP-200 and SWP-400 groups compared with control group, but IOR in liver mitochondria was significantly inhibited about 12.0% by SWP-400 group only compared with control group.

Lipid peroxide (LPO) levels were significantly decreased (14.4% and 9.1%, respectively) in liver mitochondria and microsomes of SWP-400 group only compared with control group. Oxidized protein (OP) levels were remarkably decreased about 12.7% and 16.3% in liver microsomes only of SWP-200 and SWP-400 groups, but significant difference between liver mitochondria could not be obtained. These results suggest that administration of SWP may play an effective role in attenuating oxidative stress and increasing membrane fluidity in liver membranes.