Abstract
The effect of lipid-soluble extract from maca (Lepidium meyenii), which contains macamides, on swimming endurance capacity, as an indicator of fatigue, in weight-loaded forced swimming rats was investigated. The swimming times to exhaustion of rats supplemented for 3 weeks with 30 and 100 mg/kg of maca extract increased by 25% and 41%, respectively. Supplementation with 100 mg/kg of maca extract reduced serum lactate dehydrogenase activity and muscle lipid peroxidation, and increased hepatic and muscle total glutathione compared with those values in controls. The levels of energy sources and serum lactate remained unchanged despite the longer swimming time in the supplemented rats than those in controls. These results suggest that supplementation with lipid-soluble maca extract improved swimming endurance capacity and this effect can be explained partly by attenuation of exercise-induced oxidative stress.