Ketosis is a common metabolic disorder frequently observed in dairy cows during the early lactation period. The objective of this study was to examine the changes in β-hydroxybutyrate (BHBA), glucose, non-esterified fatty acids (NEFA), glutathion peroxidase (GSH-Px), superoxide dismutase (SOD), xanthine oxidase (XOD), malonaldehyde, catalase and total antioxidant capacity (T-AOC) concentrations in healthy dairy cows and those affected by subclinical ketosis during an early lactation period. The serum from 9 healthy cows and 7 subclinically affected cows within the first 2 months of lactation were sampled. BHBA levels were measured with a serum BHBA kit (Randox Clinical Diagnostic Company, UK). Glucose was determined with a serum glucose kit (Randox Clinical Diagnostic Company). These tests were performed in a Hitachi 7170 auto-analyzer (Hitachi, Japan). NEFA, SOD, XOD, malonaldehyde, GSH-Px, catalase and T-AOC concentrations were detected with corresponding kit (Nanjing Jian Cheng Institute of Bioengineering, China). These tests were performed in a T60 UV-VIS spectrophotometer (Beijing Purkinje General Instrument Co., Ltd., China). Serum BHBA concentrations greater than 1.20 mM were considered to be due to cows affected with subclinical ketosis. The results demonstrated that in cows affected by subclinical ketosis, serum BHBA and NEFA concentrations were significantly increased, and glucose concentration was significantly decreased as compared to healthy cows. There was no visible change in serum SOD, XOD, malonaldehyde, GSH-Px, catalase and T-AOC of dairy cows with subclinical ketosis compared to the healthy cows. The serum antioxidant capacity of dairy cows with subclinical ketosis did not change compared with healthy cows.

**Keywords:** Subclinical ketosis, antioxidant capacity, dairy cows, serum, β-hydroxybutyrate