

The present work was carried out to study the effect of commercial recombinant bovine somatotropin administration to lactating dairy cattle under Egyptian condition on the animal health, some hematological parameters, some biochemical parameters, some rumen parameters, milk productivity and milk constituents.

Twenty hybrid cows (*Balady X Friesian*), aging from four to six years and weighing range from 350 to 530 Kg, were used in this study. At the start of the experiment, the cows were  $60 \pm 10$  days post-calving. The animals were divided into two groups each of ten cows; the first group served as a control, and the second served as a recombinant bovine somatotropin-treated group (rbST). The cows in the second group were injected with (rbST) at a dose rate 500 mg/animal biweekly for 200<sup>th</sup> day post-calving. Daily clinical examination was carried out for all animals throughout the experimental period. Sampling (whole blood, blood serum, rumen liquor, and milk) were regularly executed on the ninth day post-injection for all animals.

The clinical examination of different body systems revealed no apparent clinical abnormalities throughout the experimental period. The udder of the rbST-treated cows were enlarged in size but still normal in texture and free from any abnormalities in teat and udder tissue. All then animals, which received rbST injections, developed mild local inflammatory swellings at sites of injections within 24 hours post-injection.

The results of hemogram showed that the most parameters associated with erythrocytes (PCV percentages, hemoglobin concentrations, and RBCs counts) were decreased in rbST-treated cows, however their levels remained within the accepted

reference ranges and were not associated with hemolysis, hemodilution, or clinical anemia.

The results of total leukocytic counts showed that there were no significant differences between the rbST-treated cows and control ones.

The picture of the differential leukocytic counts of rbST-treated cows showed that there were increase in neutrophils and decrease in lymphocytes percentages comparing with those of control cows. The results of monocytes, eosinophils and basophils percentages were fluctuated insignificantly in rbST-treated cows comparing with those of the control cows.

The activities of the AST, ALT, and LDH of rbST-treated cows were lower than those of control cows. The activity of the ALP of rbST-treated cows was significantly higher than that of control cows.

The level of serum total protein and albumin in rbST-treated cows were lower than those of control cows but still within the reference ranges and unassociated with pathologic lesions or any clinical abnormalities.

The results of serum globulin and A/G ratio of the rbST-treated cows and control cows were closely related.

The serum glucose levels were decreased in rbST-treated cows, while the levels of total lipids , cholesterols and triglycerides were increased. The serum HDL-cholesterol levels of the rbST-treated cows were decreased and the serum LDL-cholesterol levels of rbST-treated cows were unaffected.

The levels of T<sub>4</sub> of the rbST-treated cows were increased but the levels of T<sub>3</sub> were decreased.

The levels of serum calcium and inorganic phosphate of rbST-treated cows decreased throughout the experiment, but still within the reference ranges.

The levels of serum urea of the rbST-treated cows were increased but the serum creatinine decreased but still within normal reference ranges.

The rbST administration has no direct effect on the rumen digestion as the rumen pH, rumen ammonia nitrogen, and the total volatile fatty acids (TVFAs) in rbST-treated cows fluctuating insignificantly.

The rbST administration increased the milk yield as the milk yields increased significantly in the rbST-treated cows comparing with the milk yield in control ones, and the rbST administration did not affect the milk constituents of the treated cows.

The bodyweights of the rbST-treated cows were gradually decreased by the rbST administrations.