

## Summary

The present work was carried out to study the effect of oral administration of probiotics (*levucell SC 20*)<sup>®</sup> to high producing dairy cattle under the Egyptian condition on health condition, some ruminal parameters, blood parameters, milk yield and milk composition. Fifteen Holstein multiparous cows between the 2<sup>nd</sup> and 4<sup>th</sup> lactation season, were used in this study, the selected cows were raised in a clean open yard in which all sanitary condition were fulfilled. The animals were assigned to two groups:-

Group A : - fed on probiotic free ration and acts as control group.

Group B :- fed on basic ration with daily oral administration of 0.5 g/animal of probiotic (*levucell SC 20*)<sup>®</sup>.

Rumen and blood samples were taken at 21 days before calving, and at 7, 15, then biweekly until 150 days post parturition.

The results could be summarized as follows:

A- The clinical examination of different body systems revealed no apparent clinical abnormalities throughout the experimental period.

B- Ruminal ecosystem:

-- The results of rumen pH showed a significant reduction ( $p < 0.05$ ) in probiotic treated animals compared to the control group.

-- A significant decrease in rumen ammonia nitrogen was observed in probiotic treated group compared with control group.

-- The rumen protozoal count increased significantly in probiotic treated group compared with control group

-- the results of TVFAs indicated that there was a significant increase in TVFAs in probiotic treated group compared with control group.

C- Blood biochemistry:

- The activities of the AST, ALT and ALP were not affected in the treated and the control group.

- The level of total proteins were significantly increased ( $p < 0.05$ ) in probiotic treated group compared with the control group.

- The result of serum globulin indicated that there is a significant ( $P < 0.05$ ) increase of globulins of probiotic treated group compared with control group, while there is a significant ( $P < 0.05$ ) decrease in A/G ratio of probiotic treated group compared with control group.

- The serum glucose levels were significantly increased in probiotic treated cows.

- The levels of serum cholesterol showed a highly significant reduction in probiotic treated animals.

- The levels of serum urea and creatinine showed non significant difference between probiotic treated group and the control one.

- The results of blood serum calcium and inorganic phosphorus showed insignificant increase in the level of blood serum calcium in probiotic treated group compared with control group.

D- Milk yield and milk composition:

-- The results of milk production showed that there was a significant ( $P < 0.05$ ) increase in milk production of probiotic treated group when compared to the control group.

-- A significant ( $P < 0.05$ ) increase was recorded in milk fat of probiotic treated group when compared to the control group.

-- The results of milk protein and milk lactose showed a non significant reduction in milk protein and milk lactose of probiotic treated group when compared to the control group.

-- The results of milk total solid showed insignificant increase in milk total solid of probiotic treated group when compared to the control group.

-- A significant ( $P < 0.05$ ) reduction was observed in SCC of probiotic treated group when compared to the control group.

-- The results of MUN noted that there was a highly significant ( $P < 0.01$ ) reduction in MUN of probiotic treated group when compared to the control group.