



Faculty of Agriculture (sabaBasha)

**Effect of adding selenium–enriched dried algae to ration on the
productive and reproductive performance of male Barki sheep
in North–Western Area of Egypt.**

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5. SUMMARY

The major objectives of this study was to investigate the effect of supplementation of selenium enriched micro-algae *Spirulina*, *Atrhrospira platensis* on productive and reproductive performance in Barki rams sheep. The present study was carried out at Experimental Station of Animal Production which located at Borg El-Arab, Alexandria Governorate, belonging to Animal Production Research Institute, Agricultural Research Center, Ministry of Agriculture and Land Reclamation, Dokki, Egypt. The experiment was carried out from January 2014 to March 2015. The analytical part of this study was performed at the laboratories of Experimental Station of Animal Production and at the Department of Animal and Fish Production, faculty of Agriculture (Saba Basha), Alexandria University.

Twenty four Barki ram-lamb with mean live weight 24 ± 1.1 kg were divided randomly into four groups (n = 6), control, and their experimental groups fed on the control diet which supplemented with three levels of selenium enriched micro-algae *Spirulina*, *Atrhrospira platensis* algae (0.2, 0.4 and 0.6mg / kg diet).

The obtained results were as follow:

- Dietary Supplementation of Se-algae increased ($P < 0.05$) body weight at 11 and 12 months of lambs age by (15.5 % and 17.5 %) respectively, for level of 0.2 mg Se-algae followed by (8.4 % - 7.3 %) and (5.2 % - 4.1 %) at levels 0.4 and 0.6mg Se-algae, respectively. compared with the control group.
- Average daily weight gain was significantly higher ($P < 0.05$) with supplementing of 0.2, 0.4 and 0.6mg Se-algae than that of the control groups as compared with the control.
- Dietary supplementation of 0.6mg Se-algae significantly ($P < 0.05$) increased the semen ejaculate volume from 0.87 ml in control group to 0.94 ml in 0.6mg Se-algae supplemented group.
- Sperm progressive motility have higher ($P < 0.05$) value with Se-algae supplementation, while Sperm concentration declined by Se-algae supplementation in comparison with control group.
- Levels received diet containing 0.6 Se-algae have higher normal sperm percentage with 81% than the control group, while the abnormal sperm was significantly higher ($P < 0.05$) in control group and decrease by increasing Se-algae supplementation.

- Live sperm was higher ($P < 0.05$) in 0.4mg and 0.6mg Se-algae groups than control, while the control group has higher ($P < 0.05$) dead sperm than the treated groups.
- 0.4mg and 0.6mg Se-algae groups received the higher value ($P < 0.05$) in concentration of total protein in seminal plasma, and the highest ($P < 0.05$) concentration of albumin was observed in 0.4 Se-algae, However increasing the level of Se-algae supplementation reduce ($P < 0.05$) globulin concentration.
- Total lipids in seminal plasma have the lowest value ($P < 0.05$) in 0.6mg Se-algae group, while the control group have the highest ($P < 0.05$) cholesterol concentration, and there is no significant differences in triglycerides concentration.
- Control group have the highest ($P < 0.05$) alkaline phosphatase concentration by 17.5 μ l/ml and the concentration was reduce by increasing Se-algae supplementation.
 - The concentrations of ALT were not impact with any levels of Se-algae supplementation.
 - Group supplemented with 0.4mg and 0.6mg Se-algae exhibited the highest (0.0306) value of AST.
 - There are no significant differences in hemoglobin concentration and Red blood cells count, however white blood cells count was higher ($P < 0.05$) in 0.4 and 0.6 Se-algae.
 - Rams fed on diet containing 0.6 Se-algae group have the highest ($P < 0.05$) Total protein concentration in blood serum with significantly differences as compared with control diet, However, the differences between experimental treatments were not significantly.
 - Concentration of serum glucose and creatinine didn't affected by experimental treatments. However, rams fed on diet containing 0.4mg Se-algae recorded the highest ($P < 0.0085$) value of urea as compared with control diet.
 - Supplementation of different levels of Se-algae significantly decreased the concentration of total lipids and cholesterol in comparison with control group. However, overall mean of blood plasma concentration did not affected with all levels of Se-algae Supplementation. While there is no significant difference in triglycerides concentration.
 - Control group have the higher ($P < 0.05$) value of Alkaline phosphatase and the concentration was decreased by increasing the levels of Se-algae supplementation.
 - Control group have higher ($P < 0.05$) value of Malondialdehyde and the concentration was decreased by increasing the levels of Se-algae supplementation.
 - The concentration of serum blood (T-AOC, SOD and GSH-PX) were significantly increased due to supplementation the diets with all levels of Se-algae.

Conclusion

In conclusion, the results of the present study have demonstrated that, Se-algae have an antioxidant activity at different studied levels; have useful affects on growth performance, blood analysis and semen quality parameters in Barki ram-lambs which were reflected on improving the productive and reproductive of male Barki sheep.