Summary

Fasciolosis is a serious parasitic disease infecting buffaloes, cattle, goats, sheep, donkeys, swine, horses, camels and rabbits which were reported as vertebrate hosts for the parasite *Fasciola Spp.* Fasciolosis causes great economic losses for breeders resulted from decreased production of meat, milk, secondary bacterial infections and fertility problems.

The study aimed to discuss the effect of fasciolosis on fertility status, endocrine, haematological and biochemical profiles of the parasitized female buffaloes. It aimed also, to improve fertility in non-pregnant buffalo-cows through administration of exogenous synchronizing drugs and assessment of the effect of these hormones on: sex hormones, liver function tests parameters, Glucose and minerals in serum and Erythrogram and Leukogram in the blood of healthy and infected buffalo-cows before and after treatment. In addition, 12 infected buffalo-cows were treated with two types of anti-*Fasciola* drugs and measure the response of endogenous hormones to these drugs.

All animals in the farm (163 buffalo-cows) were examined for parasitic infection using coprological and serological techniques. The percentage of parasitic infection among all animals in the herd was 22.58% in younger animals (heifers) while, it was 26.5% in multiparous animals. In heifers, the percentage of *Fasciola* infection was 6.45%. On the other hand, it was 6.82% in multiparous animals.

ELISA technique scored 12 buffalo-cows showing positive titers against *Fasciola gigantica* E/S antigen from those animals that were previously classified as coprologically negative animals. Prevalence of infection in buffalo-cows examined by faecal analysis was 6.75%

whereas, the incidence of infection had increased to 14.11% using ELISA method.

Results revealed that the length of post partum period (PPP) increased significantly in the *Fasciola* infected animals compared to the healthy animals. In addition, the length of lactation period and the daily milk yield appeared to decrease significantly in the infected animals compared to the healthy ones.

Current study showed that there was a significant decrease in estradiol concentrations in the infected than the healthy group. However, progesterone concentrations were increased significantly in the infected buffalo-cows than the healthy ones.

Blood tests from individual animals were routinely used to extract pertinent information relative to herd nutrition and help to diagnose metabolic disease problems in ruminants. RBCs count in infected animals was decreased significantly than that of the control healthy ones. The study detected a high significant decrease in Hb concentrations of the infected than that of the healthy animals. Regarding MCV and MCH levels, they were decreased but not significantly in the infected than the healthy group**.** MCHC in the infected animals showed a slight but not significant elevation than that in the healthy ones. Moreover, WBCs count was found to increase significantly in the infected group compared to the healthy one.

Several serum enzyme assays were investigated by a number of researchers and found to be useful as indicators of parenchyma liver cell necrosis in domestic ruminants. ALT and AST concentrations were raised significantly in infected than the healthy animals while, ALP concentrations were decreased significantly in the infected than the healthy ones.

Both total and direct bilirubin were increased significantly in the control infected group compared to the healthy one.

There were significant increases in the total protein and globulin concentration in the infected than the healthy animals while, albumin concentrations and A/G ratio decreased significantly in the infected group than the healthy one.

A very high significant decrease in glucose concentrations was found in the control infected than the control healthy animals.

A significant decrease in the iron, copper and phosphorus concentrations was detected in the control infected animals than the control healthy animals.

There was a significant decrease in estradiol concentrations and a significant increase in progesterone concentrations of the healthy group treated with GPG protocol and the healthy group treated with GPG plus CIDR protocol. Infected animals showed a significant decrease in estradiol and progesterone concentrations after treatment with GPG protocol and GPG plus CIDR protocol.

The pregnancy rate in the healthy animals was (33.3 %) and decreased to (16.7 %) in the presence of *Fasciola* infection. These percentages increased after injecting GPG and GPG plus CIDR protocols in healthy animals to 75 and 77.8%, respectively, and to 50 and 55.6%, respectively, in infected animals. These results indicated that the use of GPG and GPG plus CIDR protocols improved the reproductive efficiency in the tested buffalo-cows.

There were significant increases in RBCs and WBCs counts, RDW and lymphocyte percentages, PCV, MCV, MCH, MCHC, Hb, ALT, ALP, globulin, glucose and phosphorus levels and significant decreases in granulocyte percentage, AST, total and direct bilirubin and albumin concentrations, A/G ratio and iron levels in infected animals injected with

GPG protocol than healthy animals receiving the same treatments. Monocyte percentage, total protein and copper levels didn't show any significant differences between the infected and healthy groups treated with GPG protocol.

Infected animals receiving the GPG plus CIDR protocol showed a significant increase in WBCs count, PCV, MCV, MCH, MCHC, RDW and lymphocyte percentages, Hb, AST, total and direct bilirubin, total protein, globulin, glucose concentrations and a significant decrease in monocyte percentage, ALT, ALP and phosphorus concentrations than that of the healthy ones. Infected animals injected with GPG plus CIDR protocol showed no significant differences in RBCs counts, granulocyte percentage, albumin, iron and copper levels, when compared to healthy animals receiving the same treatments.

Avinide® (Rafoxanide) and Fasciontel® (Closantel) were used as anti-*Fasciola* treatment. It was found that E_2 concentrations decreased significantly in the groups treated with anti-*Fasciola* as compared to the control group while, P_4 increased significantly groups treated with anti-*Fasciola* as compared to the control group. Fasciolosis impaired fertility most likely as a consequence of the resulting pathological and physiological changes. The results of the present work supported the idea as when the infected buffalo-cows received anti-*Fasciola* treatments, the pregnancy rates increased from 16.7 in the infected animals to 67.7% after treatments.