

## Impact of using Guar plant on blood biochemical parameters of Farafra male sheep

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The present study aimed to elucidate the effect of partial replacing of Guar plant (*Cyamopsis tetragonoloba*) either as green forage (GGF) or green forage silage (GGS) to concentrate feed mixture (CFM)) on some blood metabolites and thyroxine hormones (T<sub>3</sub> and T<sub>4</sub>) in Farafra male sheep. For this reason, twenty-four growing male lambs, aged 5 months and weighed 16.69±0.69 kg were divided into three comparable groups (8 each) according to their live body weights. Three rations were tested in the experiment. G1 (70% CFM + 30 % rice straw) and considered as a control group, G2 fed 40% CFM + 40% GGF + 20 % rice straw) and G3 fed 40% CFM + 40% GGFS + 20% rice straw. The CFM and rice straw were fed to G1, G2 and G3 groups at rates 3 % and 1% of live body weight, respectively. While GGF and GGFS were offered to replace part of CFM protein. The trial extended 120 days.

Blood samples collected from all experimental animals before morning feeding (fasting) and blood serum was separated until chemical analysis of total protein, albumin, urea N, total cholesterol, AST and ALT enzymes and thyroxine hormones (T<sub>3</sub> and T<sub>4</sub>).

Results showed that levels of total protein, albumin, globulins and T<sub>3</sub> hormone increased (P<0.05) in G3 compared to G2 and control group. The concentration of urea-N for GGF and the control diet increased significantly (P<0.05) compared to GGFS diet. The activity of AST and ALT enzymes decreased (P<0.05) in G3 compared to other groups. Regardless the treatments, concentrations of total protein and its fractions increased significantly (P<0.05), while levels of urea-N, total cholesterol, AST and ALT enzymes and T<sub>3</sub> and T<sub>4</sub> hormones decreased significantly (P<0.05) at the end of the trial compared to other periods. The interaction between the experimental diets and periods of the trial was significant for the levels of urea-N (p<0.01), AST and ALT activities (P<0.05) and T<sub>3</sub> and T<sub>4</sub> hormones (P<0.05). While no significant differences detected for total protein and its fractions and for total cholesterol.

The results obtained revealed that feeding lambs on rations containing GGF or GGFS as non-traditional rations partially replaced protein of CFM, up to 40%, appeared to have no harmful effect on animal health and this is evident through the normal range of all tested blood metabolites and the activity of thyroid hormones among experimental groups.

**Keywords:** Guar green forage, Guar green forage silage, Farafra male sheep, blood metabolites, T<sub>3</sub> and T<sub>4</sub> hormones.