The 2nd International Electronic Conference on Animals - Global Sustainability and Animals: Welfare, Policies and Technologies

QUANTITATIVE EXPRESSION PATTERNS OF LYMPH NODE TOLL-LIKE RECEPTOR GENES IN SALEM BLACK GOATS DURING DIFFERENT PROPORTIONS OF ENERGY AND PROTEIN IN DIET

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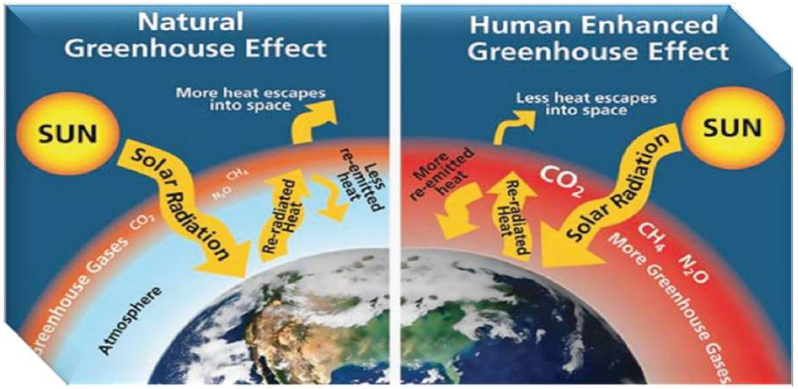
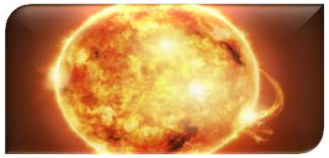
Impact of Climate Change on Livestock Production



Direct Effects



Heat stress

Cold stress

Indirect Effects

↓ Pasture availability

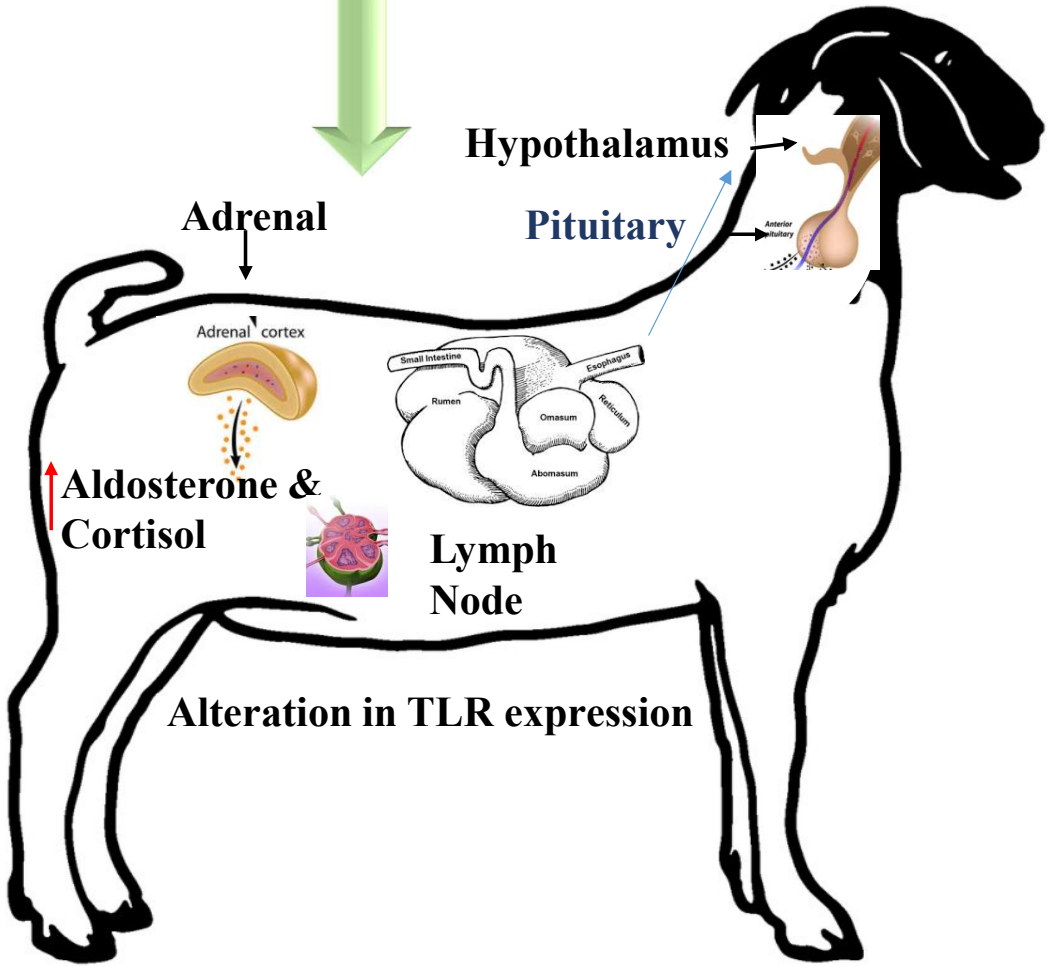
↓ Forage quantity and quality

↑ Severity of pests and diseases

Concept Figure

Nutritional Stress

Energy or Protein or both?



↓ Rectal Temperature

↓ Respiratory rate

↓ Pulse rate

↑ Corticotrophin releasing hormone

↑ Adrenocorticotropic hormone

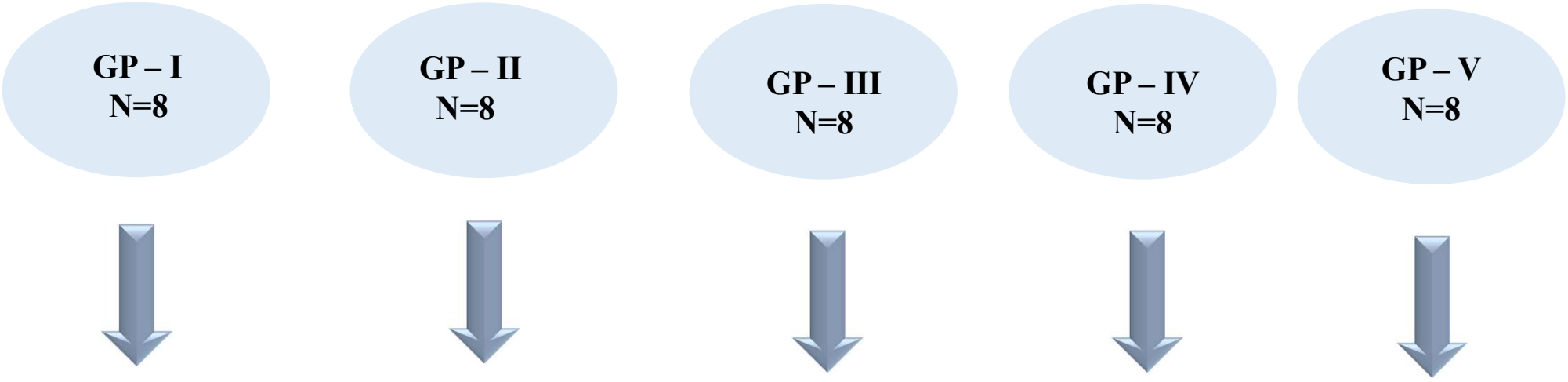
Objective

❖To evaluate the impact of different proportions of energy and protein ratio on the relative Lymph node TLR1-10 mRNA expression in Salem Black goats

❖ To identify if energy or protein or both are crucial for TLR expression.

Technical Programme

Goat Requirement: B. Wt -15 Kg; ADG- 75 g; CP – 78; TDN – 350 – 90 days

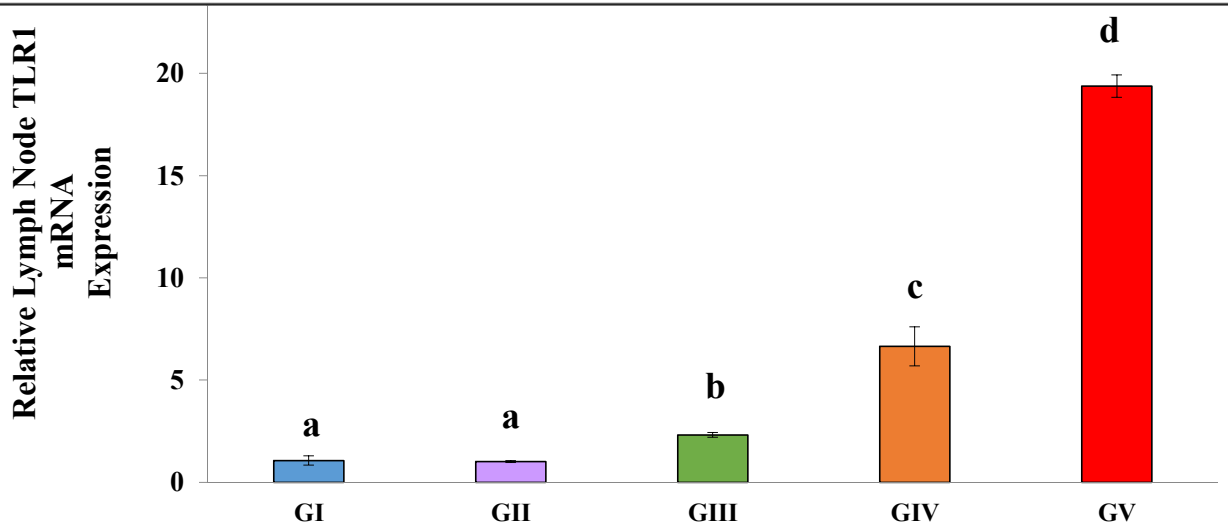


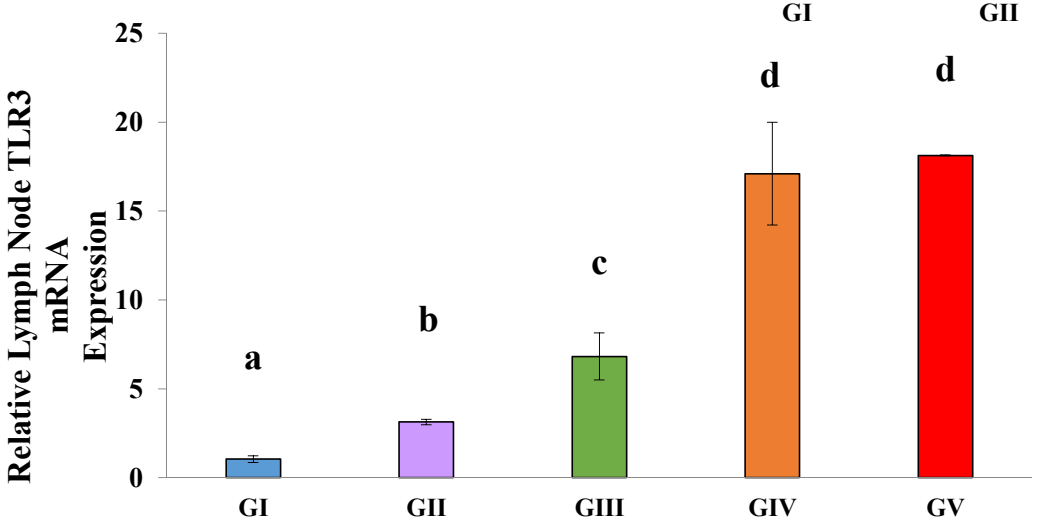
ICAR Recm. Energy & Protein	Normal Energy 50% Low Protein	Normal Protein 50% Low Energy	50% Low Protein 50% Low Energy	70% Low Protein 70% Low Energy
CP: 80 G TDN:358 G DMI: 3.30% CP: 82 TDN: 362	CP: 40 G TDN:358G DMI: 3.26% CP: 44 TDN: 336	CP: 80 G TDN:179G DMI: 2.64% CP: 80 TDN: 229	CP: 40 G TDN:176 G DMI: 1.96% CP: 42 TDN: 186	CP: 24 G TDN:107 G DMI: 1.52% CP: 25 TDN: 138

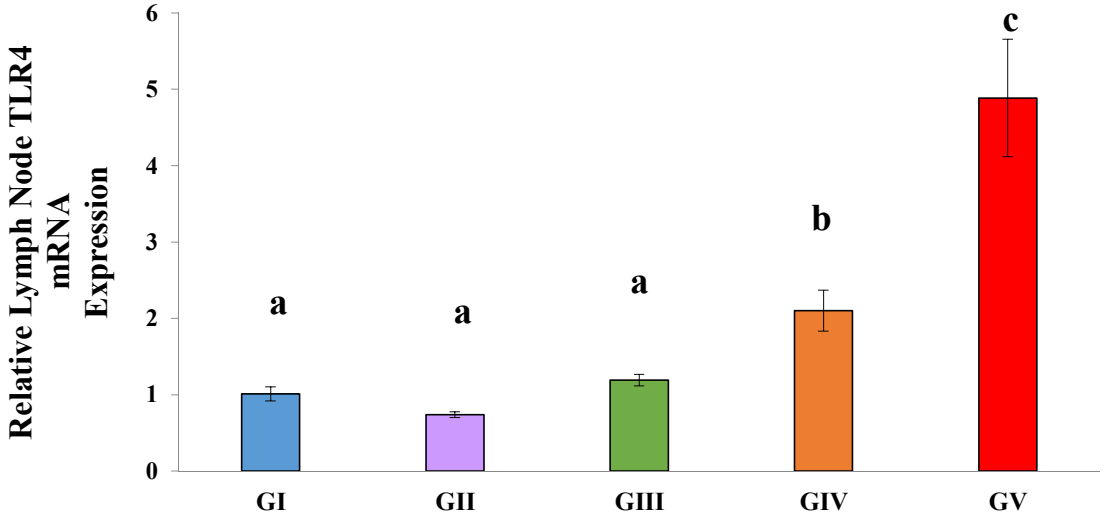
Parameters Studied

- Lymph Node TLR (1-10) Gene expression- 90 day

Effect of Different Levels of Energy and Protein on Relative Splenic TLR1, 3 and 4 mRNA Expression in Salem Black Goats



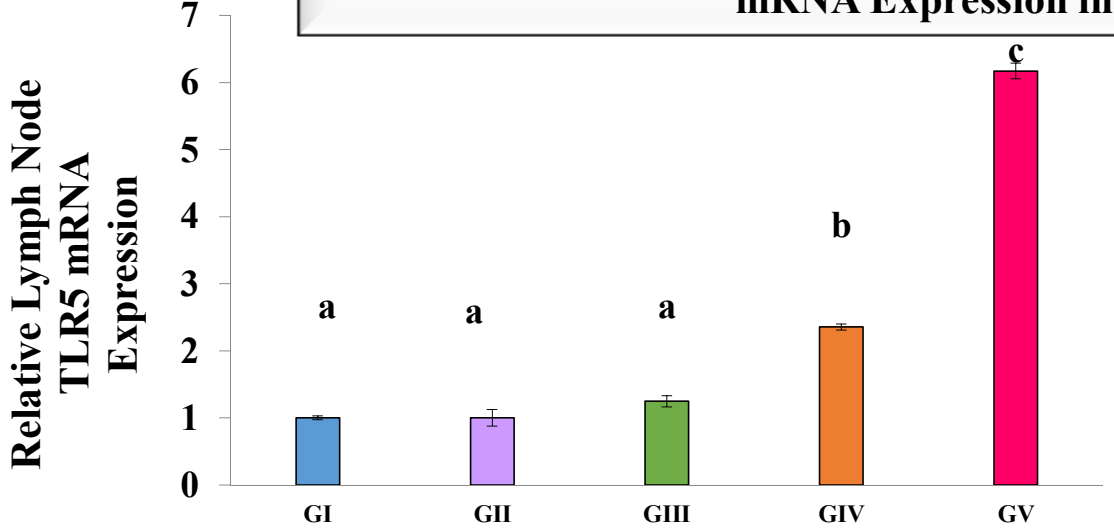


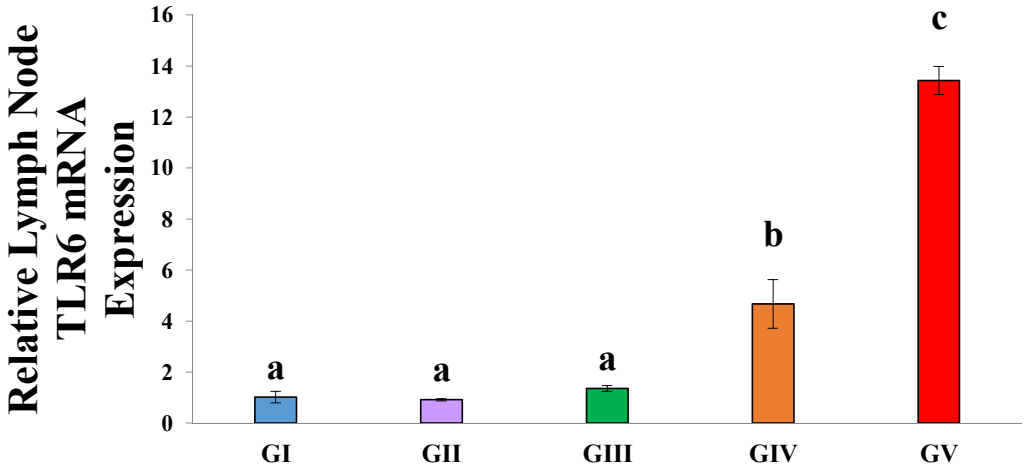


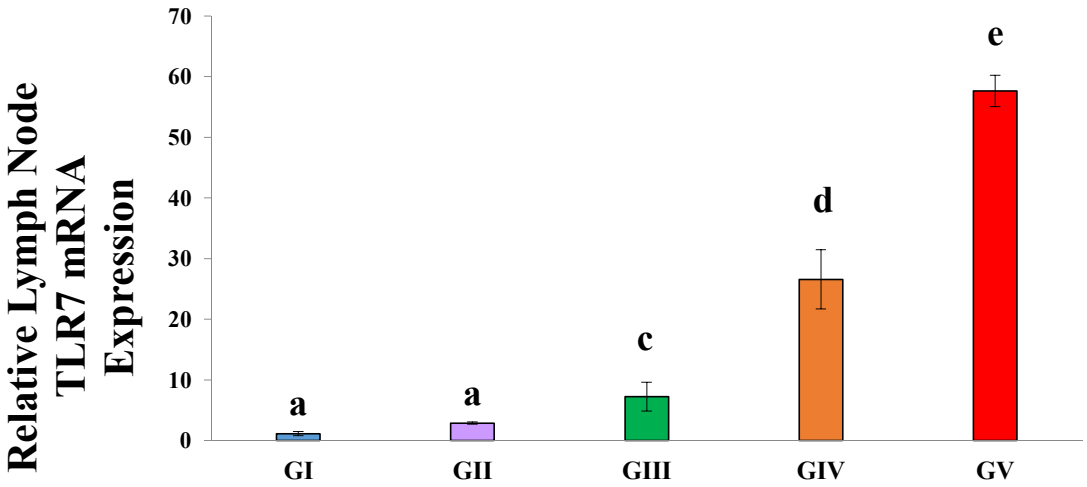
Values bearing different superscripts differ with each other at P< 0.05

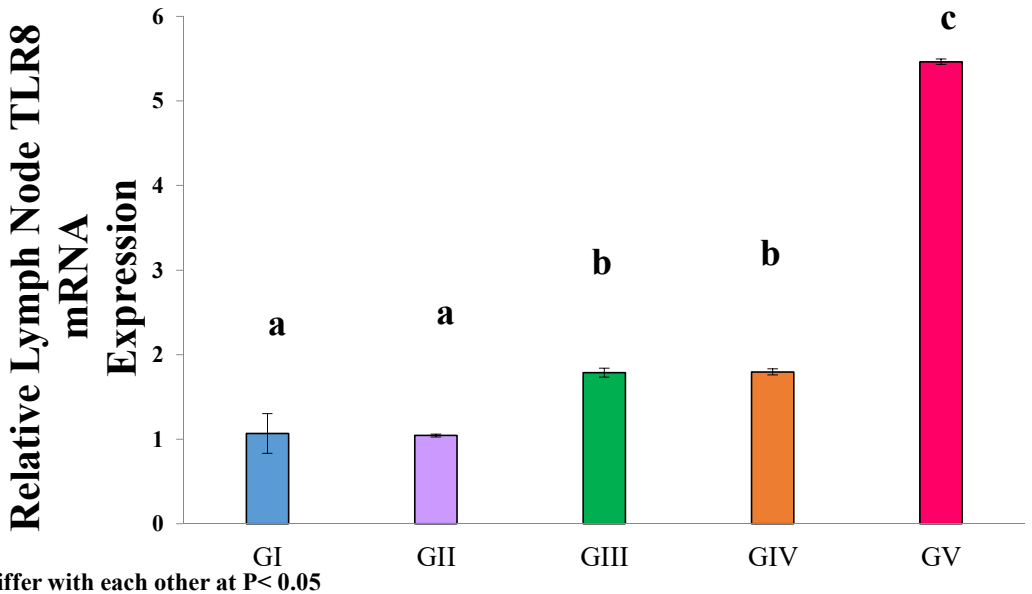
GI- ICAR recommended, GII- Normal Energy, 50% Low Protein, GIII- Normal Protein, 50% Low Energy, GIV- 50% Low Protein, 50% Low Energy, GV- 70% Low Protein 70% Low Energy

Effect of Different Levels of Energy and Protein on Relative Splenic TLR5, 6, 7 and 8 mRNA Expression in Salem Black Goats









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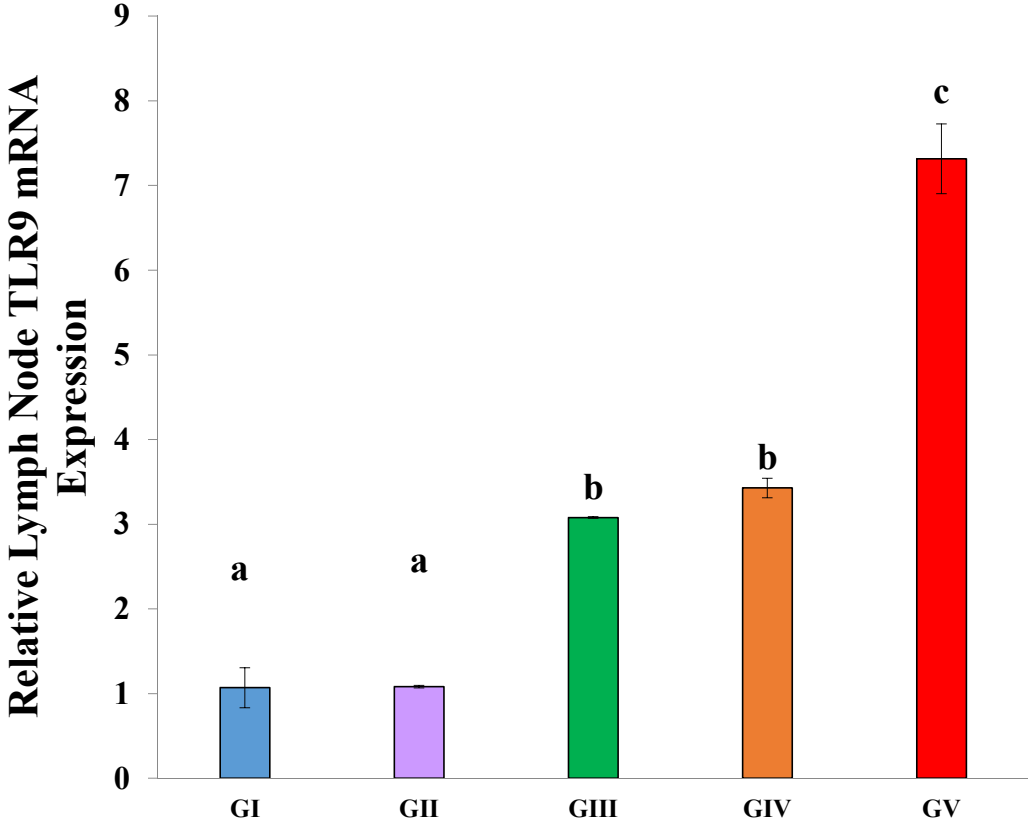
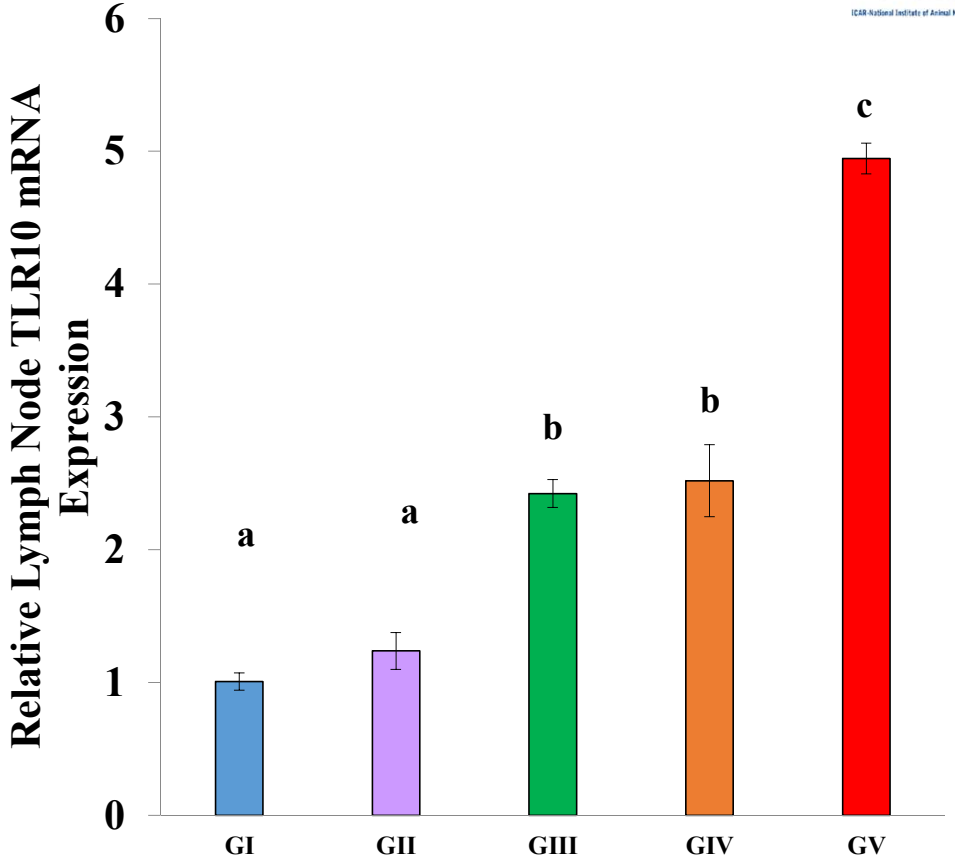
Effect of Different Levels of Energy and Protein on Relative Splenic TLR9 and 10 mRNA Expression in Salem Black Goats





Values bearing different superscripts differ with each other at P< 0.05

GI- ICAR recommended, GII- Normal Energy, 50% Low Protein, GIII- Normal Protein, 50% Low Energy, GIV- 50% Low Protein, 50% Low Energy, GV- 70% Low Protein 70% Low Energy

Salient Points

- **The present study helped to understand the modulation of TLRs 1-10 expression in indigenous Salem Black breed in lymph node during different proportion of Energy and Protein.**

- **There was significantly higher expression patterns of TLR1, TLR7, TLR8, TLR9 and TLR10 in Group III (Normal Protein and 50% Less Energy) as compared to Group II (Normal Energy and 50% Less Protein).**

- **There was significantly higher expression pattern of different TLR1, 3, 4, 5, 6, 7, 8, 9 &10 was seen in GIV (50% Less energy and 50% less protein) & GV (70% Less energy and 70% less protein) compared to GI.**

Conclusion

- There was significantly higher expression patterns of TLR1, TLR7, TLR8, TLR9 and TLR10 in Group III (Normal Protein and Less Energy) as compared to Group II (Normal Energy and Less Protein) indicated the expression patterns were sensitive to altered energy.

- TLR1, 3, 4, 5, 6, 7, 8, 9 & 10 could serve as marker during both protein and energy deficiency based on the significantly higher expression patterns in GIV and GV.

- The study identified energy as an important component to maintain TLR based immune response.


Thank you!