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Quantitative expression of hepatic toll-like receptor 1-10 mRNA in Osmanabadi goats during different climatic stresses

Sophia Inbaraj[1], **V Sejian**[2], **M Bagath**[2] and **Raghavendra Bhatta**[2]
[1]ICAR-Central Island Agricultural Research Institute, India
[2]ICAR-National Institute of Animal Nutrition and Physiology, India

A study was conducted to establish the impact of heat stress, nutritional stress and combined stresses (heat and nutritional) on *TLR* genes expression in liver samples of Osmanabadi goats. Twenty four adult Osmanabadi male goats (average body weight 16.0 kg) were divided into four groups viz., C (n=6; control), HS (n=6; heat stress), NS (n=6; nutritional stress) and CS (n=6; combined stress). The study was conducted for a period of 45 days. C and HS goats had *ad libitum* access to their feed while NS and CS goats were under restricted feed (30% intake of C bucks) to induce nutritional stress. The HS and CS goats were exposed to solar radiation for six hours a day between 10:00 hours to 16:00 hours to induce heat stress. The animals were slaughtered at the end of study and their liver samples were collected for different *TLR* gene expression. Except *TLR5* and *TLR9*, higher expression of all other *TLR* receptors in liver was observed in HS group. Animals exposed to CS expressed high amount of *TLR5* in liver. Although higher expression of *TLR9* was obtained in all stress groups (HS, NS and CS), than control group, still the expression did not varied between the stress groups. The higher expression of majority of the *TLR* gene in HS groups indicates that when nutrition is not compromised heat stressed animals were able to sustain their immune functions. This is the first report on impact of different climatic stress on *TLR* gene expression in large animals and these results could serve as reliable baseline information for future research efforts pertaining to impact of climate change on immune response in livestock species.

Biography

Sophia Inbaraj has completed her Master's degree with specialization in Veterinary Bacteriology, IVRI, Izatnagar. Currently, she is working as a scientist in ICAR-Central Island Agricultural Research Institute, Port Blair.

sophiinbaraj@gmail.com

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