



Effect of yeast, astragalus polysaccharide or tulathromycin administration on immune function of transported heifers

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Abstract

The objective of this study was to evaluate the effect of yeast, astragalus polysaccharide or tulathromycin administration on immune function of transported heifers. Angus heifers (n = 80) were ranked by BW on d-7 and assigned to 1 of 4 treatments before shipping 1,400 km: 1) fed a basal diet (**CON**); 2) administered yeast product (20 g/heifer daily) in basal diet from d-7 to 7 (**YEA**); 3) administration of astragalus polysaccharide (20 g/heifer daily) in basal diet from d-7 to 7 (**APS**); or 4) administration of tulathromycin (0.025 mL/kg BW subcutaneous injection) at loading (d 0; **TUL**). Over the receiving period, ADG were less ($P < 0.01$) for CON than YEA, APS and TUL but did not differ among these groups (published data). Neutrophil was lower in YEA and APS than in TUL and CON on d1 and d4 ($P < 0.05$). Serum IL-2 was lower in APS than CON and TUL on d1 and d4 ($P < 0.05$). Serum IgA and IgG was higher in APS than in CON and TUL on d1, 4, 7, 14, 28 ($P < 0.05$), serum IgG was higher in YEA than in CON and TUL on d14 and 28 ($P < 0.05$), serum IgA was higher in YEA than in CON and TUL on d1, 4, 7, 14, 28 ($P < 0.05$). In conclusion, APS and YEA could enhance immune function, resulting in alleviating the performance loss caused by long-distance transport.

Method

Animals and Management

- 80 Angus heifers was ranked by BW (315 ± 6 kg) on d-7 and assigned to 1 of 4 treatments (5 pens/treatment, 4 heifers/pen);
- On d0, all the heifers were commingled and transported at the same time in three one-deck livestock trailers, 1400km/29h.
- Upon arrival (d1), heifers were unloaded, weighed, blood sampled, and then assigned to 20 feedlot pens in the same manner as pre-transport for a 28-d feedlot receiving period.

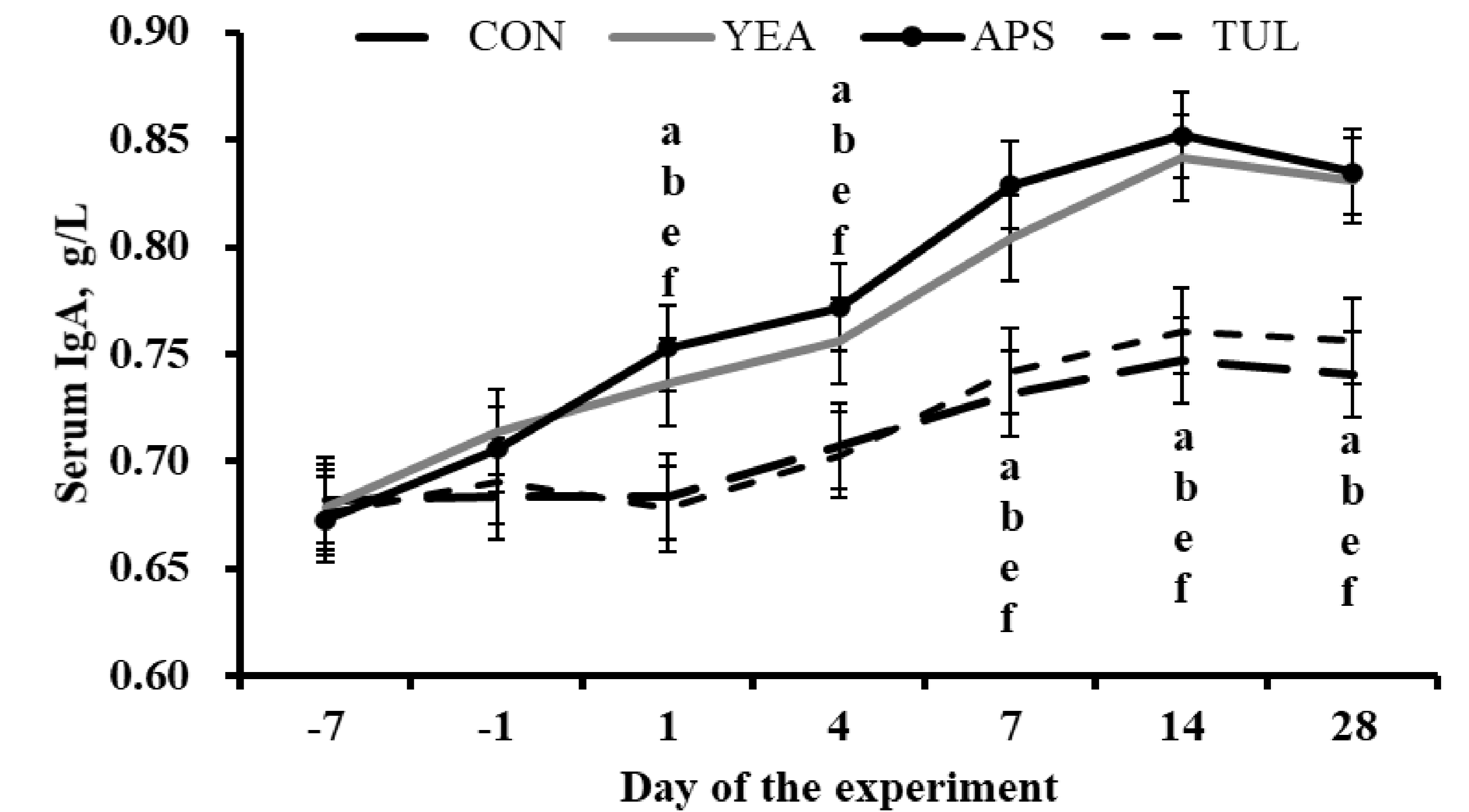
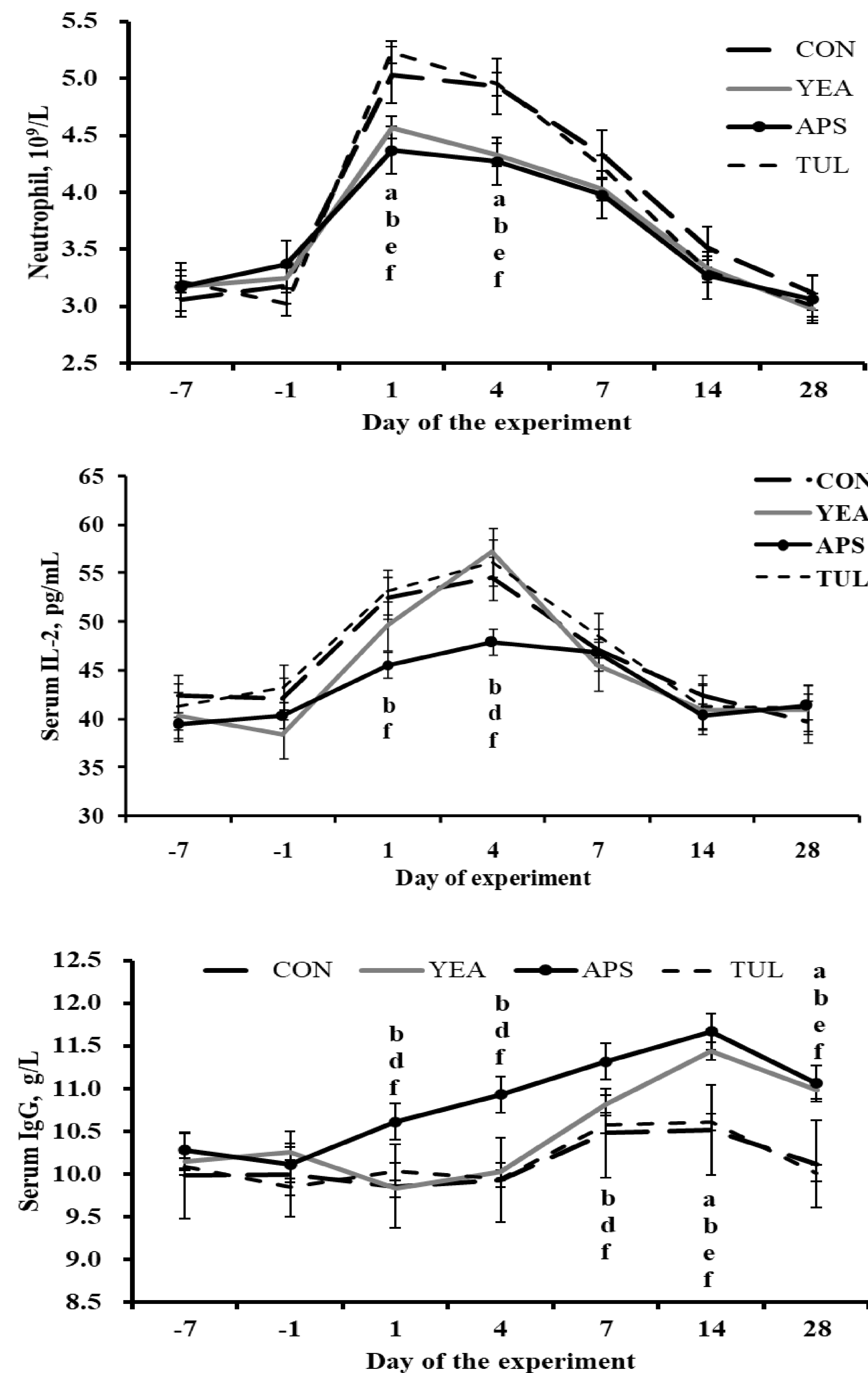
Collections and Analysis

- Complete Blood Count
- Serum Blood chemistry
- Receiving Performance

Statistical Analysis

- Repeated measure using PROC MIXED procedure of SAS.

Results



Discussion

- Results suggest that long distance transport elicited the increase of neutrophil, whereas APS and YEA could alleviate the neutrophilia.
- long distance transport elicited the increase of IL-2, whereas APS could alleviate the inflammatory response.
- YEA and APS could effectively increase the serum IgG and IgA concentration.
- As we reported earlier, YEA, APS, or TUL alleviated the receiving performance loss caused by long-distance transport. One of the reason could be APS and YEA alleviated the inflammatory response and enhanced immune function.

References

Xin Wu, Na Cao, Zhenming Zhou, Paul A Beck, Hao Wu, Qingxiang Meng, Effect of anti-inflammatory compounds or antibiotic administration on receiving performance and physiological responses of transported heifers, Journal of Animal Science, Volume 98, Issue 2, February 2020, skaa036, <https://doi.org/10.1093/jas/skaa036>

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