

Effects of Beta-glucan supplementation in late gestation sows on the level of colostral immunoglobulin G and piglet growth performances

Jakavat Ruampatana^a, Unchean Yamsrikaew^a, Banthita Chuaydamrong^b, Nathathai Soodsaward^b, Ponlatorsn Rukklang^b, Suphacha Boonyasantisuk^b, Suphasorn Ratchatakajornkit^b, Junpen Suwimonteerabutr^a, Morakot Nuntapaitoon^{a,c,*}

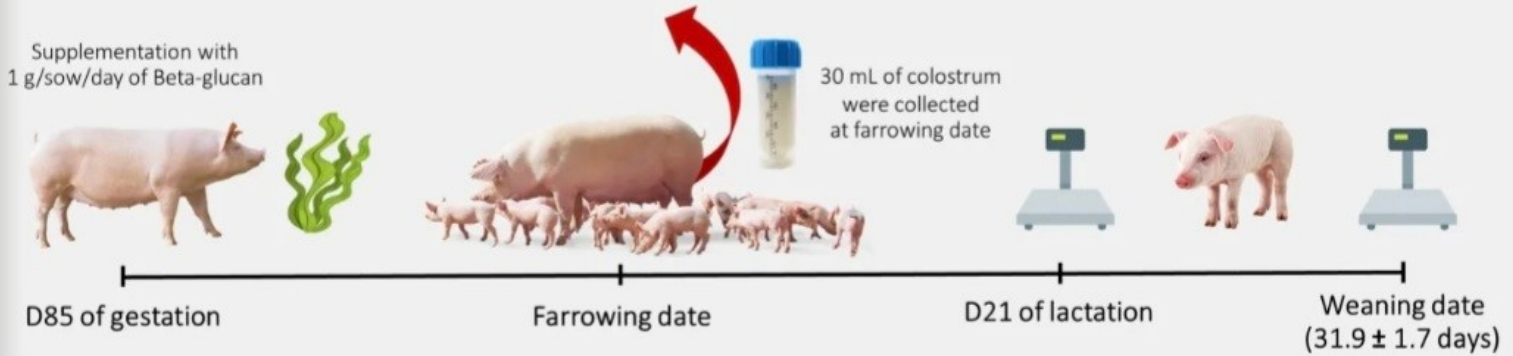
^aDepartment of Obstetrics, Gynaecology and Reproduction, Faculty of Veterinary Science, ^b5-year student, Faculty of Veterinary Science, Chulalongkorn University, ^cCenter of Excellence in Swine Reproduction, Chulalongkorn University, Bangkok 10330, Thailand

*Corresponding author: Morakot.N@chula.ac.th

OBJECTIVES

The objectives of the present study are to investigate the effects of beta-glucan supplementation in late gestation sows on the level of colostral immunoglobulin G and piglet growth performances.

- Immunoglobulin G (IgG): ELISA kits (Bethyl laboratories[®])



MATERIALS AND METHODS

CONTROL (n=30) – sows were fed a conventional diet.

TREATMENT (n=31) – sows were fed a conventional diet and supplemented with 1 g/sow/day Beta-glucan (ALETA[™], Kemin industries, Thailand Co. Ltd.) for 30 days before predicted farrowing until 21 days after parturition (54.5 ± 4.7 days).

RESULTS AND DISCUSSION

Supplementation with Beta-glucan in late gestating sows significantly elevated colostral IgG concentration compared to control group (53.0 vs. 42.4 mg/ml; $P = 0.045$) (Figure 1). This finding aligns with a previous study demonstrating the immunomodulatory properties of Beta-glucan, indicating its potential to enhance passive immunity transfer in piglets (1).

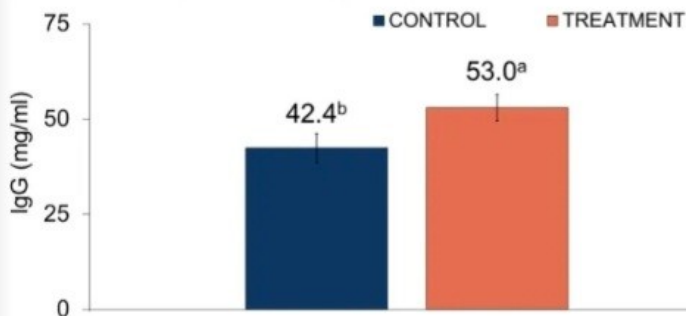


Figure 1 Effect of Beta-glucan supplementation on colostral IgG concentration. ^{a,b} indicates significant differences among the groups ($P < 0.05$).

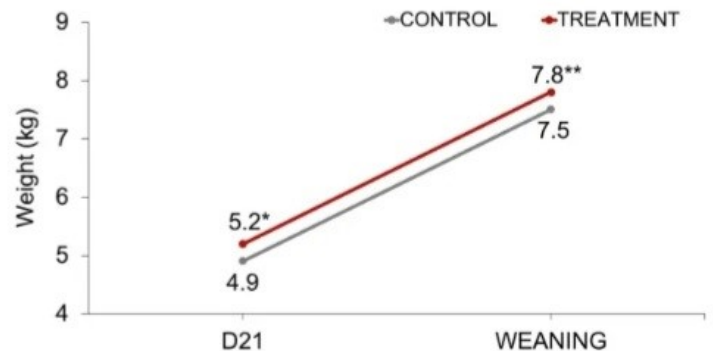


Figure 2 Effect of Beta-glucan supplementation on average weight at D21 and weaning.

Significant difference between group at * $P < 0.10$ and ** $P < 0.05$.

The piglet's W_{21D} in the supplemented sows was numerically higher than in the control sows (5.2 vs. 4.9 kg; $P = 0.08$) (Figure 2). The piglet in the supplemented sows had higher W_w than in the control sows (7.8 vs. 7.5 kg; $P = 0.05$). This is in agreement with Heim et al. (2), which showed that maternal Beta-glucan supplementation improved piglet growth.

CONCLUSIONS

Supplementation of Beta-glucan during late gestation in sow enhanced colostral immunoglobulin G and piglet performances.

ACKNOWLEDGEMENTS

Financial support for the present study was provided by Faculty of Veterinary Science, Chulalongkorn University, and Kemin Industries (Thailand) Co., Ltd.

REFERENCES

- Carvalho et al., 2023. Anim. 13: 3490.
- Heim et al., 2015. Anim. Feed Sci. Technol. 204: 28-41.

