

Protection conferred by the combined use of a mixture of two attenuated *Salmonella* Enteritidis and *Salmonella* Typhimurium vaccines against a double infection with both serovars.

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INTRODUCTION

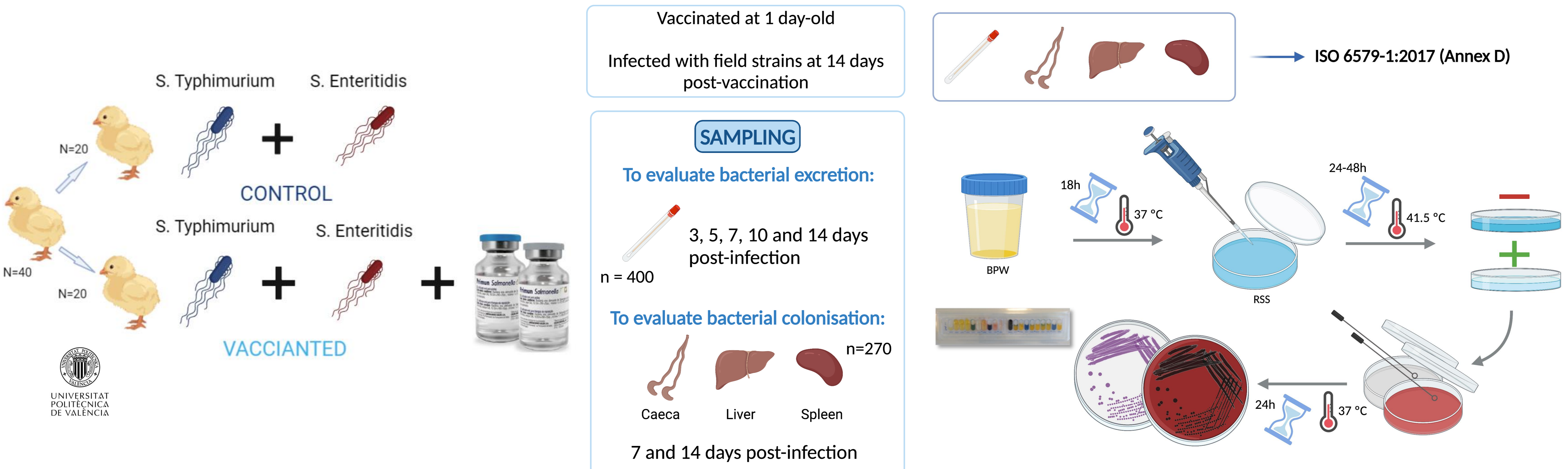
Salmonella spp. is the second most prevalent zoonotic pathogen in the European Union, and strictly related to poultry production, responsible for **60,050 human gastrointestinal infections during 2021**. In terms of the most significant serovars, *Salmonella* Enteritidis and *Salmonella* Typhimurium accounted for approximately 54.6% and 11.4% of the reported cases, respectively. However, salmonellosis can be efficiently prevented by a One Health approach which considers the full farm-to-fork chain.

For that reason, control measures must be maintained constantly and cannot be reduced throughout the poultry production system, within vaccination highlights. **Vaccination** is a simple, safe, and effective way of protecting animals against diseases. In case of *Salmonella* control, the objective of vaccination is to **prevent the colonization and reduce the spread of the pathogen** since the beginning of the production cycle, when chicks are more susceptible to *Salmonella* infection. The combination of two vaccines against the predominant serovars is a valuable strategy to **reduce farm operations**, as both vaccines could be applied in the same water solution.

Hence, the objective of this study was to evaluate the efficacy of the application of a suspension with two monovalent live attenuated vaccines, PRIMUN SALMONELLA E and PRIMUN SALMONELLA T, to reduce excretion and colonization after an experimental infection with a mixture of two field challenge strains, *S. Enteritidis* and *S. Typhimurium*, according to Pharmacopeia instructions.

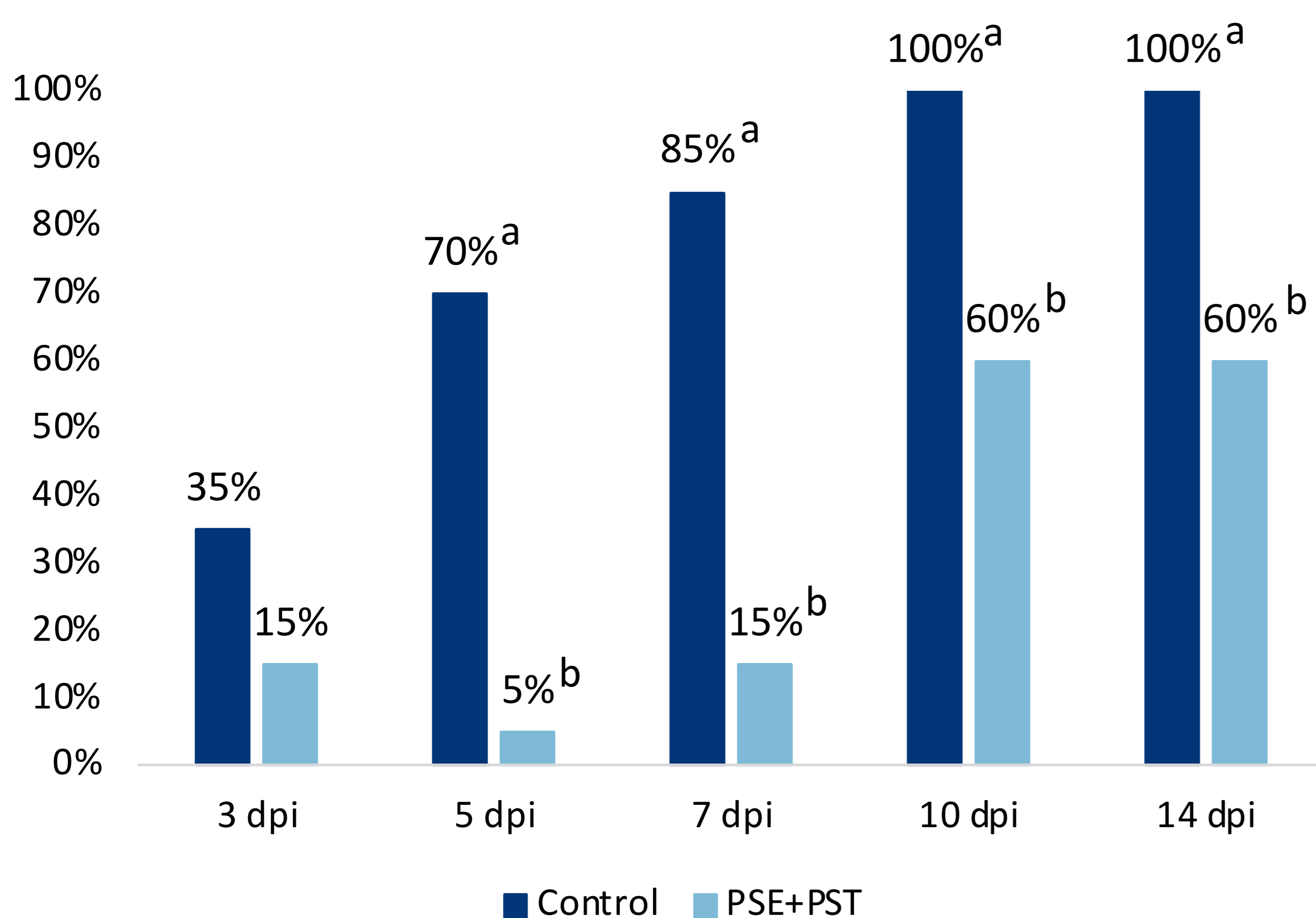


MATERIALS AND METHODS



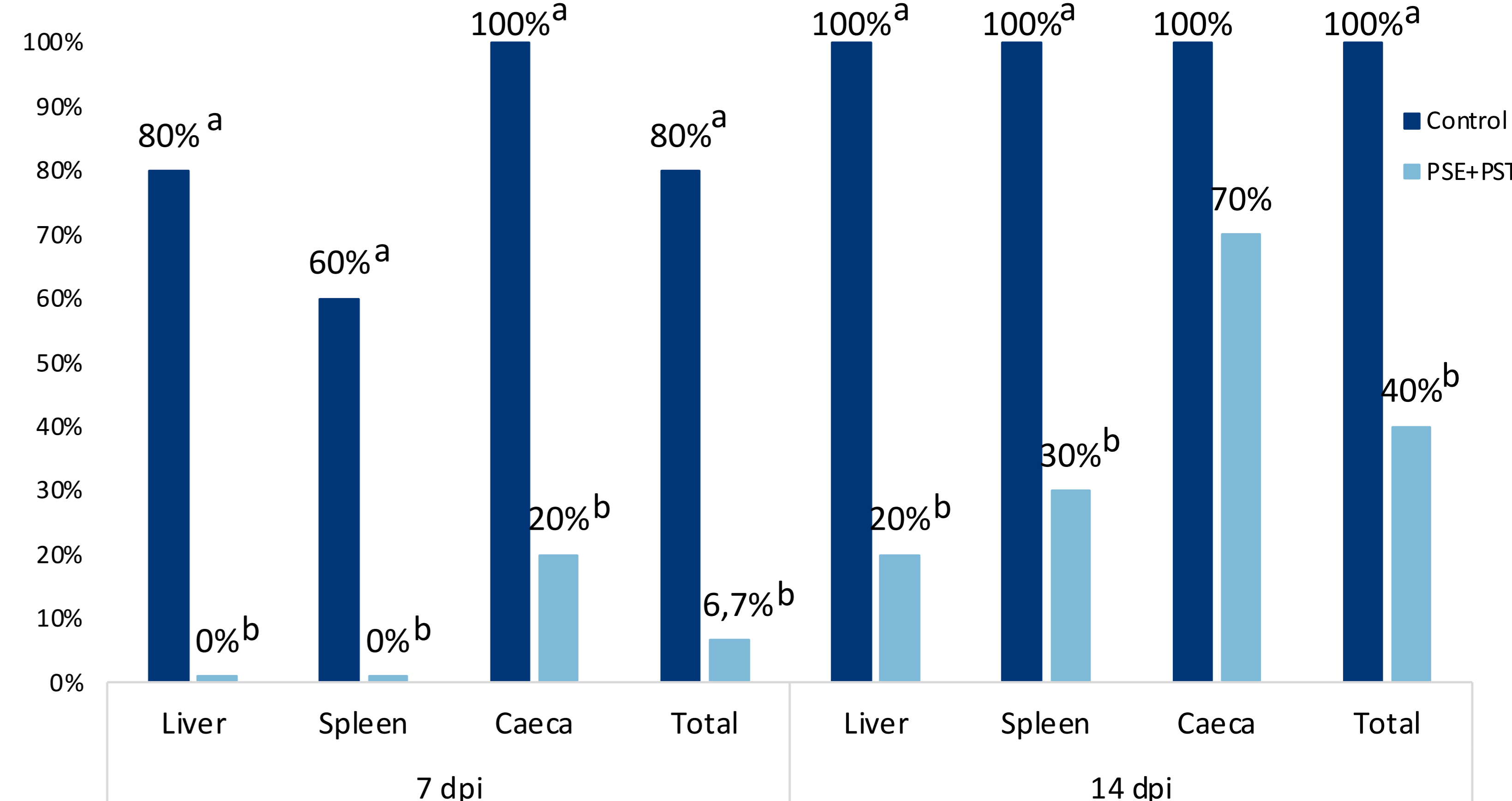
RESULTS

Salmonella excretion



Salmonella excretion: mean of 72,5% in the control group and 21,25% in the vaccinated group. Significant differences at 5, 7, 10 and 14 days post infection (P-value < 0.05).

Salmonella colonization



Day 7*: mean of 80% of colonization in control group vs. 6.6% in vaccinated group
Day 14*: mean of 100% of colonization in control group vs. 40% in vaccinated group.
Day 7+14*: mean of 90% of colonization in control group vs. 23,3% in vaccinated group. *Significant differences (P-value < 0.05).

CONCLUSION

In conclusion, when the two vaccines (PRIMUN SALMONELLA E and PRIMUN SALMONELLA T) are applied together as a mix in SPF day-old-chicks at a minimum dose, the excretion and colonization of internal organs after a double challenge with *S. Enteritidis* and *S. Typhimurium* field strains is significantly reduced.

REFERENCES

EFSA and ECDC (European Food Safety Authority and European Centre for Disease Prevention and Control). The European 505 Union One Health 2021 Zoonoses Report. EFSA Journal 2022, 20. doi: 10.2903/j.efsa.2022.7666. ISO Standard. ISO - ISO 6579-1:2017 - microbiology of the food chain - horizontal method for the detection, enumeration and serotyping of *Salmonella* - Part 1: detection of *Salmonella* spp. <https://www.iso.org/standard/56712.html>. Figures created with BioRender.com