

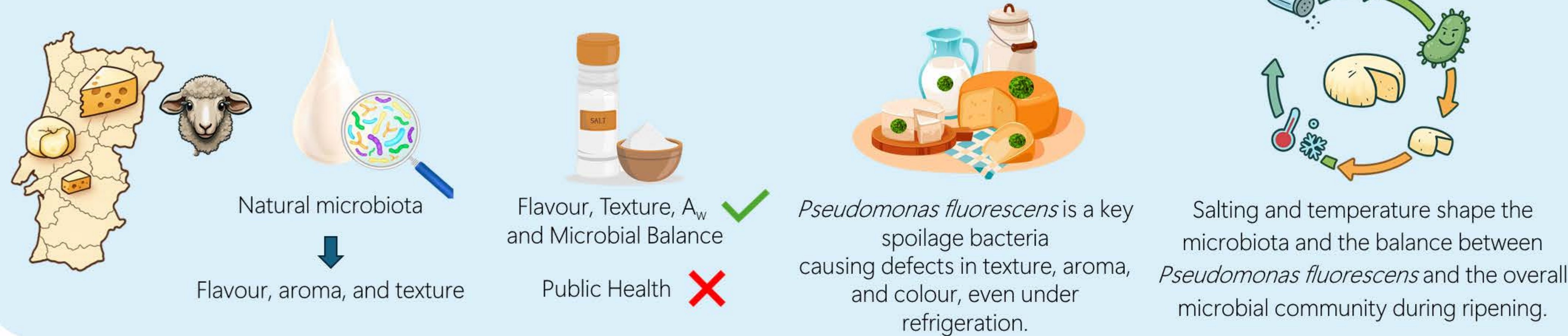
Influence of Sodium Chloride on the Behaviour of *Pseudomonas fluorescens* in Cured Sheep Cheese

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Introduction

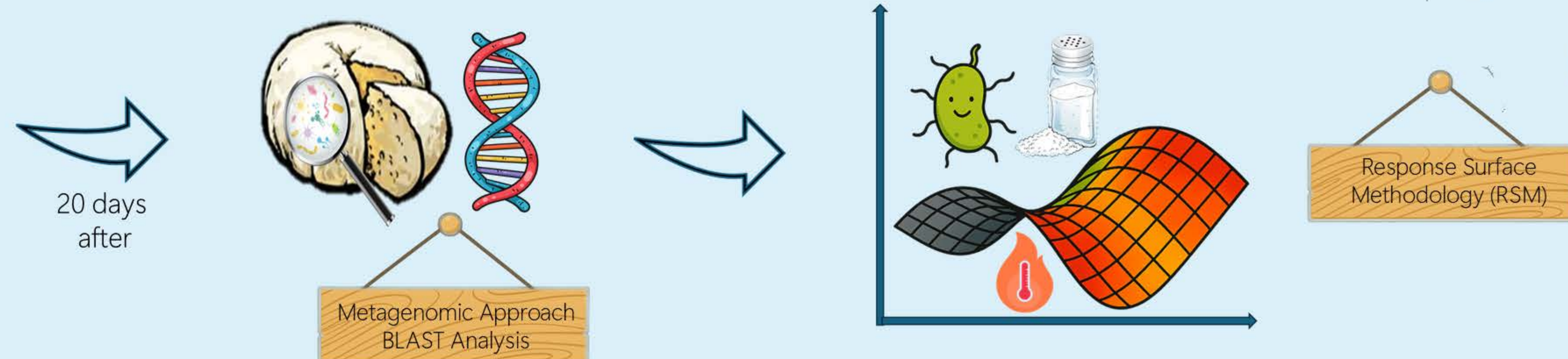


Aims

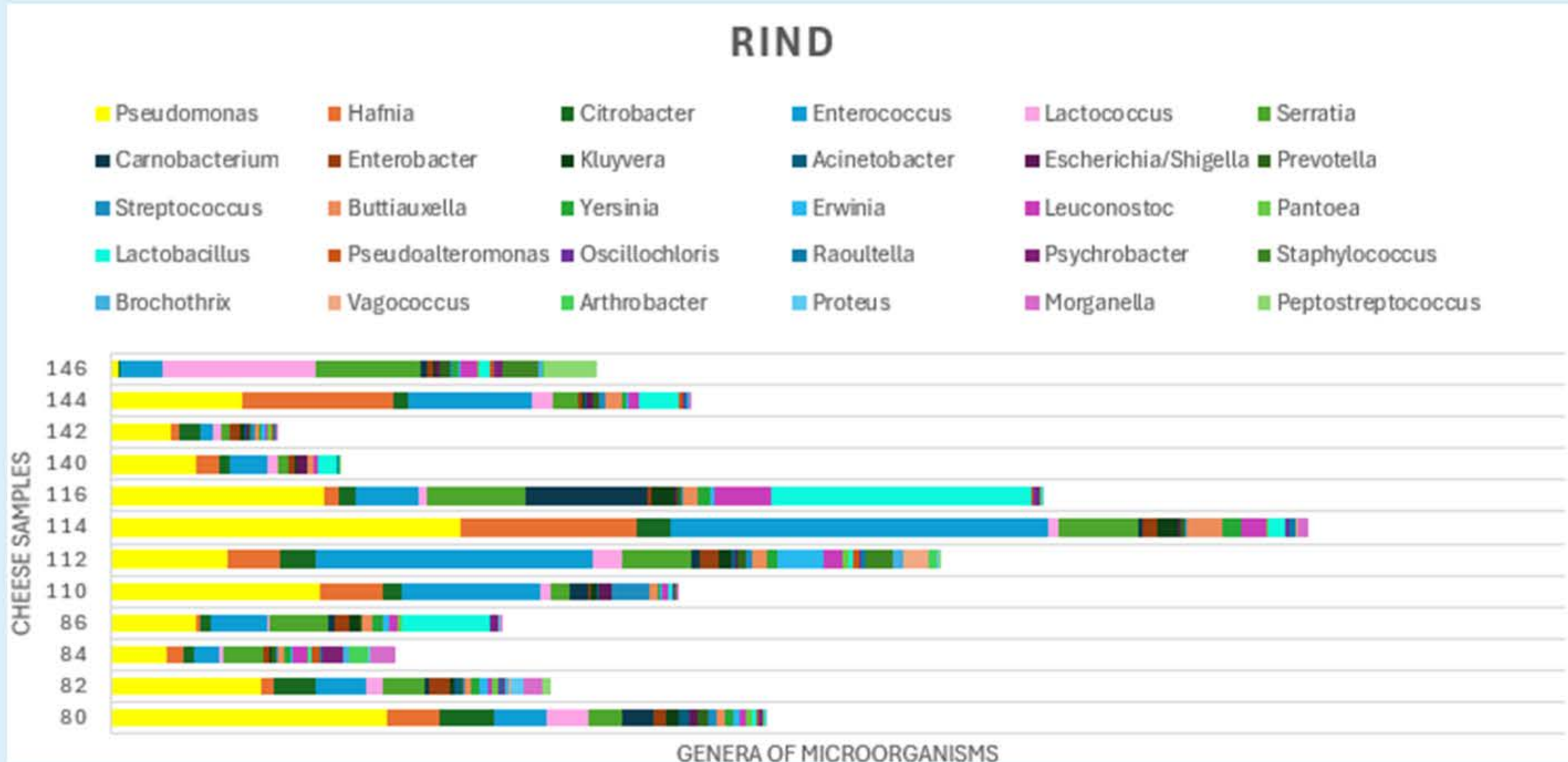
To evaluate the impact of different salting levels and ripening temperatures on the physicochemical properties and microbial population of raw ewe's milk cheeses after 20 days of ripening

Methodology

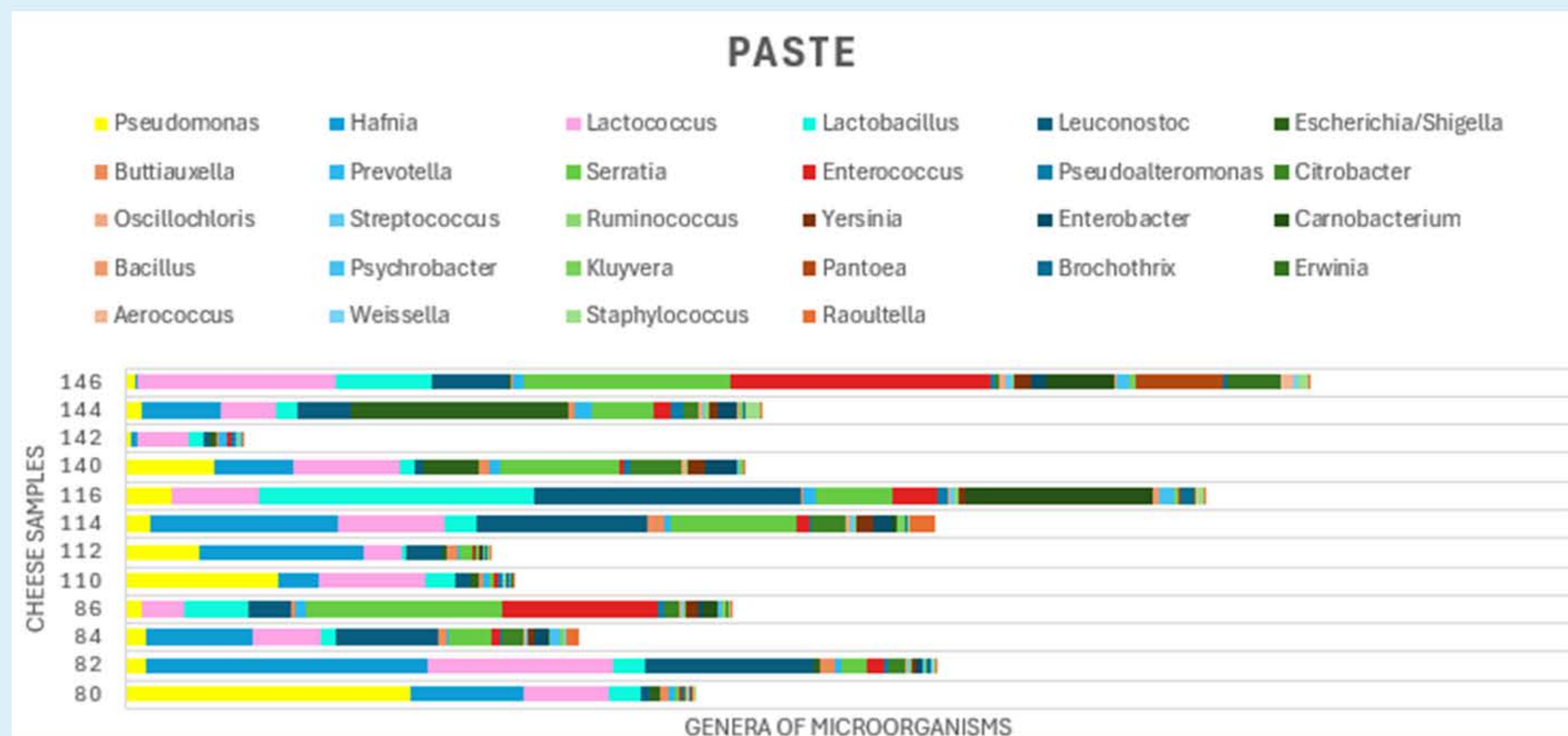
Cheeses were produced from raw ewe's milk inoculated with *Pseudomonas fluorescens* and ripened for 20 days under different salt concentrations (0%, 2%, 4% and 6%) and temperatures (8 °C, 11 °C and 14 °C).



Results



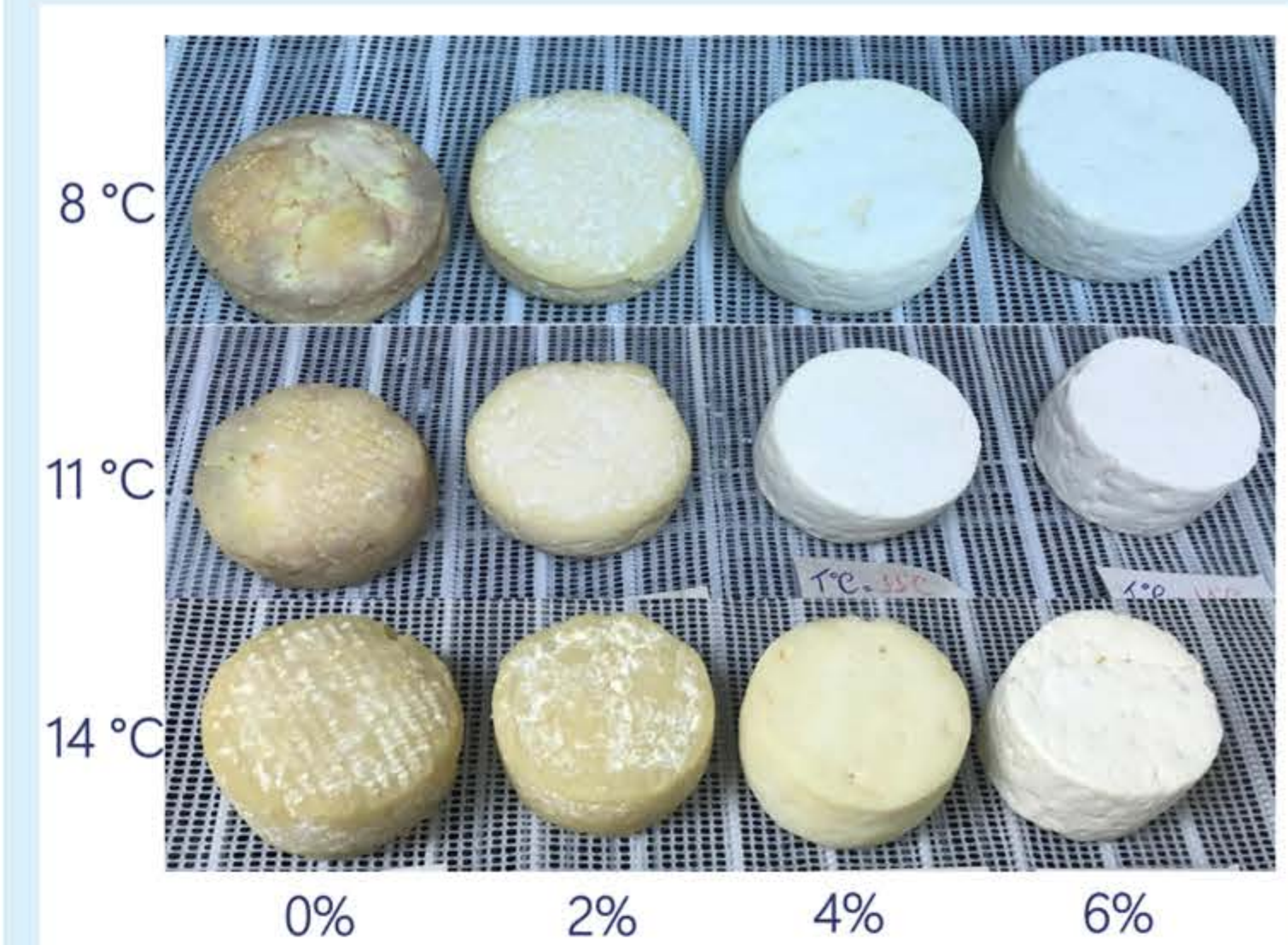
Pseudomonas spp. dominated under low salt and temperature, confirming the rind as their main reservoir. The lowest abundance of *Pseudomonas* spp. was observed under 14 °C with 2% salt, being this the most selective against condition, with LAB becoming more prominent.



LAB predominated, while *Pseudomonas* spp. appeared strongly at 11 °C and 14 °C with 4% salt. Overall, the paste showed stronger LAB presence, supporting their antagonistic role against *Pseudomonas* spp.

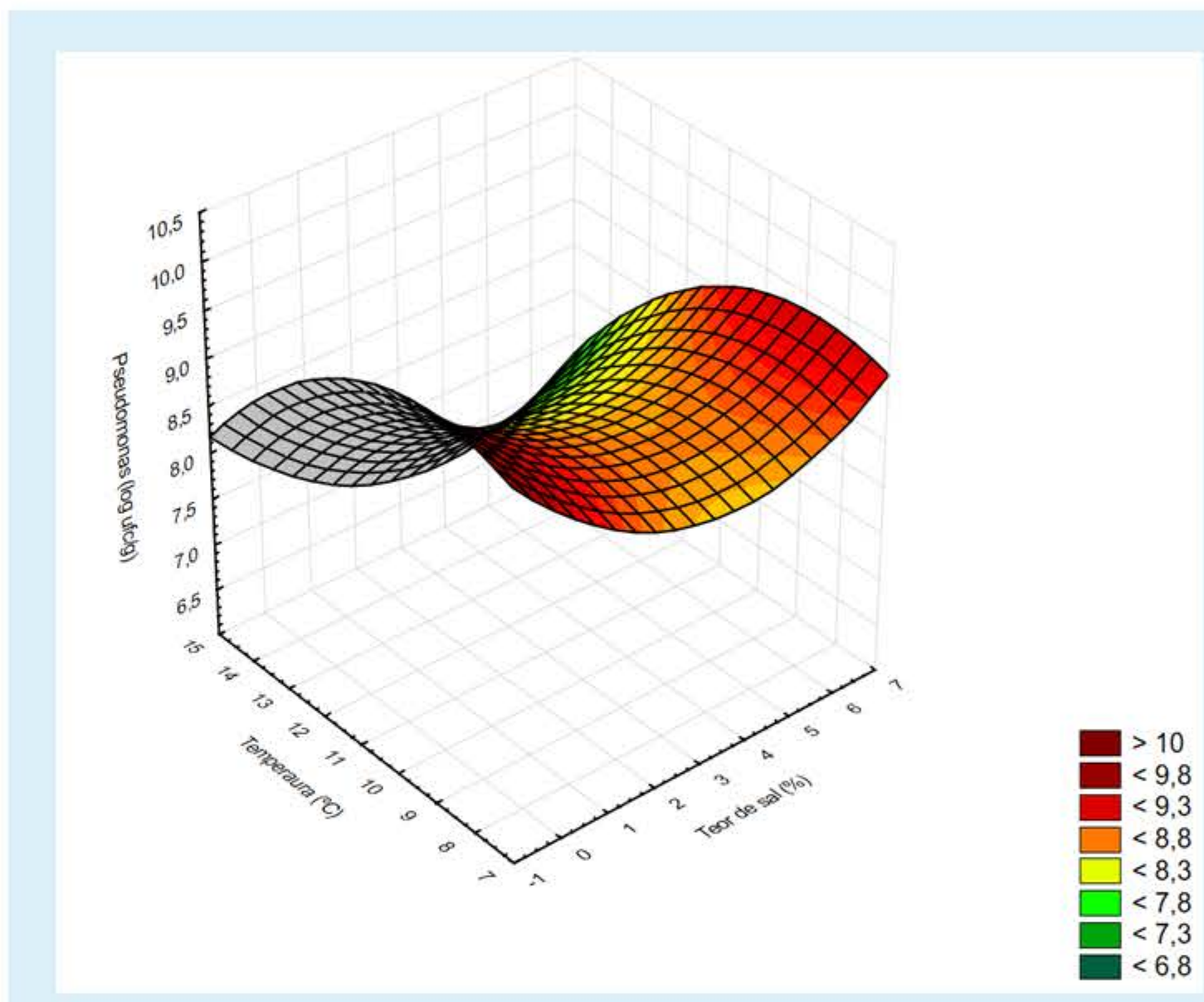
Visual evaluation of the cheese samples allowed their classification into three distinct groups:

- No salt, 8 °C and 11 °C → Chromatic and texture defects (*Pseudomonas* spp. activity);
- 2% salt and 14 °C / no salt → Typical traits (smooth rind, straw-yellow colour and lateral bulging);
- 4-6% salt → Atypical traits (whitish colour, edge formation).



Response Surface Methodology (RSM)

The response surface model was applied to evaluate the combined effects of salt concentration and ripening temperature on *Pseudomonas fluorescens* viability.



Maximum viability at low salt (0–2%) and low temperatures (8 and 11 °C).

Progressive reduction in counts with increasing salt and temperature.

Minimum values observed at 14 °C + 2% salt (~ 6.6 log CFU/g), highlighting this condition as the most effective in limiting *Pseudomonas* spp. Growth.

Conclusions

Across all approaches, *Pseudomonas* spp. were shown to dominate under low salt and cold conditions, causing chromatic defects and atypical rind traits. Metagenomics confirmed the rind as their main reservoir, while LAB prevailed mainly in the paste, reflecting their antagonism. Overall, selective ripening ($\geq 2\%$ salt, 14 °C) proved to be the most effective condition to suppress *Pseudomonas* spp. and promote typical cheese quality.

Acknowledgements

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