**PLANT SPECIES’ DEPENDANT *IN VITRO* IMMUNE RESPONSE AND CHANGES IN THE PORTED BACTERIOME IN SMALL VERSUS LARGE RUMINANTS**

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**Abstract**

Low-input farms, where cohabitation of various species is frequent, ensure welfare by providing outdoor free-roaming and also offering the opportunity for expression of physiological behaviour of the animals. The study aimed at investigating the bacteriome and the immune potential of cohabitants (bovine and sheep) from a low input farm. The research was carried out on nasal swabs and blood samples from bovine (n=7), and sheep (n=17) cohabiting on the same low-input farm. The swabs were subjected to clasical bacteriology techniques and bichemical identification by API tests (Bio Merieux France). To monitor the *in vitro* blast transformation capacity of lymphocytes, aliquots of blood were mixed 1:4 with RPMI1640 (Sigma Aldrich, USA), further divided in 200µl aliquots in duplicate in 96 well-plates and supplemented with a mitogen (PHA), alcohol control and alcoholic extract of *Symphytum officinale* (1.5 µl/well). The plates were incubated at 37⁰C for 72 h. The glucose residue was quantified by spectrophotometry (SUMAL PE2, Karl Zeiss, Jena) and blastogenic indices (SI%) were calculated. The groups were compared by Student’s t test for statistical significance of the results.

*P. aeruginosa, A. hydophila/caviae, E. cloacae, Pasteurella pneumotropica/M. haemolytica, Sphingomonas paucimobilis* were isolated from bovine with an average MAR index of 0.288, while *P. oryzihabitans, P. aeruginosa, P. fluorescens/P. putida, E. cloacae, Shigella spp.* and *Ewingella americana* with a MAR index of 0.37 were isolated from sheep.

The spontaneous SIwas higher in cows (55.7± 10.3%) while PHA induced SI was higher in bovine (53.2±9.21%) and sheep (37.81±5.08%). The *Symphytum officinale* extract did not influence the SI in either bovine or sheep.

Considering the similar influential factors acting on cohabiting animals on a low-input farm, there was a species-specific immune system controlled MAR resistance of the bacteriome, which the *Symphytum officinale* extract could not influence.

**Key words**: bovine, sheep, bacteriome, *in vitro* cellular response, MAR index, *Symphytum officinale*

**Acknowledgements**

The work was supported by grant ERANET Core Organic Co-fund ROAM Free #249 ⁄ 2021