**SUPPLEMENTARY MATERIAL**

**Encapsulation Procedure**

The microorganisms were inoculated into tryptone soy broth, incubated for 48h at 37 °C. After incubation, the population was adjusted to 107 CFU/mL, and 20% maltodextrin was added. The samples then underwent a non-lethal heat treatment (55 °C, 10 min), and was dehydrated by spray drying (flow rate of 12 mL/min and outlet air temperature of 70±5 °C) (MSD/EV, Elettronica Veneta, Motta di Livenza, Italy). The resulting material had its microbial population determined to assess the effectiveness of the process through inoculation onto tryptone soy agar. Previous research demonstrated the survival potential of encapsulated bacteria in simulated swine and poultry digestion [1].

**Table S1.** Bacterial population in powder, analyzed immediately after the spray-drying process, and survival rate after simulated digestion.

|  |  |  |
| --- | --- | --- |
| **Bacteria** | **Log CFU/g** | **Survival rate(%)** |
| **Swine digestion (6h)** | **Poultry digestion (4h20min)** |
| ***Bacillus amyloliquefaciens plantarum* MLB3** | 6.07±0.86 | 80.2±1.4 | 109.6±8.0 |
| ***Bacillus subtilis* MLB2** | 5.15±0.66 | 55.2±5.2 | 128.1±28.4 |
| ***Bacillus velezensis* CL197** | 5.81±0.92 | 90.2±4.7 | 127.9±10.6 |
| ***Streptomyces griseus* CECT 3276** | 5.78±0.23 | 73.9±14.7 | 122.6±0.8 |

**Reference**

1. Evangelista, A.G.; Nazareth, T. de M.; Luz, C.; Dopazo, V.; Moreno, A.; Riolo, M.; Meca, G.; Luciano, F.B. The Probiotic Potential and Metabolite Characterization of Bioprotective Bacillus and Streptomyces for Applications in Animal Production. *Animals* **2024**, *14*, 388, doi:10.3390/ani14030388.