

# Review of: "The anti-staphylococcal activity of probiotic-contain gelatin and whey coatings on processed chicken breast"

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Potential competing interests: No potential competing interests to declare.

The manuscript entitled "The anti-staphylococcal activity of probiotic-contain gelatin and whey coatings on processed chicken breast" presents a simple study to evaluate a possible antagonistic effect of two probiotic strains (*L. plantarum* ATCC8014 and *B. bifidum* DSM20456) on the growth of *S. aureus* in chicken meat. Despite clear and fluid writing, the work contains some experimental design issues that need to be evaluated before publication. First, since chicken meat is sold raw and refrigerated, this should be the form used to start treatments, and not cooked meat as was done in the work. The study did not present the methodology for counting *S. aureus* throughout the refrigerator period; that is, how much meat was collected at each point (1, 15, 30, and 45 days of storage), how the meat was processed (homogenized in saline? what weight/volume ratio), what serial dilutions were made, and what medium was used for plating and counting *S. aureus*. Furthermore, the authors do not show how they converted the plate counts into measurements of the amount of *S. aureus* in the meat, which sounds strange in the results, since CFU/mL was presented and we expected to evaluate the degree of *S. aureus* contamination in CFU/g of chicken meat. Another point that was not evaluated was the viability of probiotic bacteria throughout the experiment. This data is fundamental, as it would support the discussion of the lack of antagonistic effect of the two probiotics after 15 days of storage, most likely due to the fact that the bacteria are not viable after this period of refrigeration and contact with atmospheric oxygen. Finally, another problem related to the experimental design is related to the control groups used. It was expected that the control groups would receive the coatings (gelatin or whey protein) without the addition of probiotics, so that when comparing the groups we would only evaluate the effect of the probiotic promoting antagonistic action. As presented, with a control without any coating, the effect of the type of coating may be biasing the results. When presenting the results, the authors need more attention, since in Table 1 the authors propose in the title to present the results in log form and end up plotting results in the form of powers of 10; this needs adjustment. In Figure 1, it would be elegant to present the results in the same unit used in Table 1, which was not done. As previously mentioned, there is no description of the conversion of plate count results to CFU/ml presented in the results section. Finally, in the Introduction, in order to improve the attractiveness of the study, I suggest including: 1) Updated data on the relevance of protein production from poultry farming for the economy and human consumption, with reference; 2) Epidemiological data on cases of food poisoning by *S. aureus* in poultry products and the impact of this data on the health system, corroborating the claim that this type of contamination is a public health problem; 3) Include data on the previously evaluated antagonistic action of the two probiotic strains tested against *S. aureus* in in vitro tests, data that can be used in the discussion, with reference; and 4) present the question or knowledge gap at the end of the introduction

section. What the work wants to achieve is the absence of studies using such types of coatings and such probiotic strains to evaluate the protective effect on the contamination of chicken meat with *S. aureus*.