

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.

Dear Authors.

I have a privilege to review the manuscript titled: "The anti-staphylococcal activity of probiotic-contain gelatin and whey coatings on processed chicken breast" in Qeios.

In my opinion the subject of the article is very interesting and important. Extension of the shelf life of the food products is a valid subject and requires further testing.

After thorough reading of the manuscript, I have a few remarks, that I am going to share with you.

First remark

You did not described properly the process of obtaining bacterial inoculum that you used for preparation of coatings. You said, I quote "The cultures were aseptically transferred to 95 ml MRS broth and incubated under previous conditions. Finally, the cell suspensions were centrifuged at 1500×g for 15 min at RT and washed twice with 0.1 % sterile peptone water [26]. In the following, the freshly prepared bacteria sediment was used in the coat preparation."

There is no information on the concentration of bacteria that you used for preparation of coating. How many colonies were there (cfu/ml or per gram of coating)? Without experimentally establishing this, it is a great possibility that in each batch of coating there will be different number of probiotic bacteria. You say that the cultures were aseptically transferred to 95 ml of MRS broth, but you did not standardize the number of bacteria after the overnight incubation in MRS broth, or at list there is no description of this process. Therefore, must assume that you didn't do it which would mean that further experiments and comparisons may be subjected to error. You write later in the text that: " Probiotic strains under study (equal to 10⁹ CFU/ml) were separately added to the coat solutions.", so I assume that there must have been some form of standardization of the number of bacterial colonies in its suspension performed. You just have to describe it. Without the standardization the whole comparison and all your results might be subjected to error. The same goes for preparation of *Staphylococcus aureus* inoculation.

Second remark

Judging by the numbers of *S. aureus* concentrations listed in Table 1 and depicted in Figure 1, you cannot say about "The

anti-staphylococcal activity of probiotic-contain gelatin and whey coatings”, because in the end *S. aureus* thrives, and its population is even higher in coat-treated meat than in comparison to the control samples (Table 1, Figure 1). So, you may describe only inhibitory effect of coatings and not the anti-staphylococcal effect of it. Also, in Figure 1 there is spelling error in chart legend. Instead of “whey” there is “why” which completely change its meaning. Please correct it.

Third remark

Concluding from my second remark, in my opinion only (I might be wrong about it), the inhibitory effect of coatings with probiotic bacteria may be the result of the presence of the propionic bacteria itself, which simply by competing with *S. aureus* for nutrients, are limiting the population of the pathogen. If this is the case, then I would suggest studies on the effect of an addition of probiotic bacteria, in the coating of chicken meat, on human health – especially microbiome. This seems to be more justified than trying to prove the “anti-staphylococcal activity of probiotic-contain coatings on processed chicken breast.

Fourth remark

As you can surely notice from my writing, I am not a native, but I believe that this manuscript could use a language proof service.

Kind regards,

Krzysztof Krawczyk