Foods-2512778 by Oh et al.

Itemized List of Changes

Responses to Reviewer #1

In this study, the authors did a lot of research on Enterococcus faecium DMEA09, including phenotype analysis and genomic analysis. It is a valuable study for reference. The discussion of results is insufficient and the representativeness of assessment methods is not fully discussed. These two parts should be supplemented and revised.

#1. The discussion of results is insufficient. Please supplement this part and cite proper references.

> Thanks for your comments. According to the comments of the reviewer, the discussion on the results was supplemented and references were added (L 203-207, 233-240, 302-318, 367-370, 414-431, 553-556, 568-574, 592-597).

#2. Please explain more about why you chose this strain and what the advantages of this strain are.

> Thanks for your comments. Although it was presented throughout the results as an advantage as a starter strain for DMEA09, additional advantages were presented for them in the future (L414-431).

#3. Why were these 10 antibiotics chosen for the Antibiotic susceptibility method? Can you provide relative reference to support your explanation?

>The types of antibiotics used in antibiotic resistance experiments have not been accurately presented internationally. However, EFSA presented guidelines for antibiotic resistance to microorganisms used in food or feed, and since the DMEA09 strain used in the experiment is a strain for application to food, the experiment was conducted according to the guidelines. In addition, the content was presented in the existing manuscript, and this time it was revised and added it (L203-207).

#4. In Line 198-199, it showed “The MIC value of clindamycin was 8 mg/L, which was twice as high as the break point of 4 mg/L”. The result of the analysis of the clindamycin is different from the others, whether there is a toxicity concern, please add an explanation and provide references to support this.

> Thanks for your comments. The results were explained by adding the genomic analysis results for the experimental content. In addition, an explanation of the content was added according to the reviewer's suggestion (L302-314).

#5. In Line 200-201, it showed “hemolysis and biofilm formation generally assessed for safety were evaluated”. Please cite the proper reference to support it.

> The results were explained by adding the genetic analysis results for the experimental content. And according to the reviewer's comments, references of the content was added (L214-215).

#6. In Line 224-226, it showed “It showed pro tease activity when salt concentration was 3% (Figure 2). However, it did not show any lipase activity”. Having the ability to proteolyze may also produce small molecule proteins with poor flavor. The breakdown of fats may also produce small molecule with good flavor. Please add

an explanation for only protease activity was evaluated in this manuscript. And explain why the disadvantages of protease are not concerned.

> Thanks for your comments. As the reviewer's comments, we cannot rule out the possibility that unwanted sensory ingredients are produced through protease activity. However, when sensory properties are produced in an undesired direction in fermentation, it is known to be due to the formation of bacteria that are not suitable for the beginning of fermentation or late-fermentation. The *E. faecium* selected in this experiment is reported to have positive results in fermentation as a dominant bacterium in the fermentation stage. Our previous experiments also showed an increase in sensuality when *E. faecium* showing protease activity was used as a starter. Therefore, the application of *E. faecium* is expected to have a positive effect on the sensory characteristics. And I added this information to the manuscript (L233-240). However, the relationship between protease genes and sensory properties will be confirmed in other experiments in the future.

#7. In Line 263-264, it showed “Since toxic factors such as enterococcal surface protein, collagen adherence, pheromone expression, and cytolysin were mentioned as reasons for no registering Enterococci in QPS”, please cite the proper references.

>Added the reference (L287).

#8. In Line 266-267, it showed “toxin and hemolysin gene were not identified from annotated genes of DMEA09 genome by searching for keywords.”. And in Line 283-284, it showed “low frequency of detection of toxic factors”. Please explain clearly whether there are any toxic factors in the analysis of genes in this manuscript.

> Revised the sentence (L317-318).

#9 In Line 330, it showed “food origin corresponded to CC94”. And in Line 332, it showed “the strain corresponding to CC94 is not safe”. Please explain whether this strain of Enterococcus faecal can be regarded as a safe food and cite the proper reference.

> Revised the sentence (L367-370).

#10 The title of the Figure should be at the bottom.

> Revised it.