

CLAIMS

What is claimed is:

1. A consumable composition comprising a recombinant food preserving enzyme (rFPE), wherein the FPE is a goose-type lysozyme (gFPE); wherein the composition is semi-solid or a gel composition.
2. The consumable composition of claim 1, wherein the consumable composition is free of bacterial impurities.
3. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 1.
4. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 1.
5. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 2.
6. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 2.
7. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 3.
8. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 3.
9. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 4.
10. The consumable composition of claim 1, wherein the gFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 4.
11. The consumable composition of any one of the previous claims, wherein the consumable composition is heat treated.
12. The composition of any one of the previous claims, wherein the consumable composition has a longer shelf life than a nearly identical consumable composition which does not comprise the gFPE.
13. The composition of any one of the previous claims, wherein the consumable composition has a longer shelf life than the shelf life of a nearly identical consumable composition which comprises chicken egg-white muramidase rather than the gFPE.
14. The composition of any one of the previous claims, wherein the gFPE is produced in a *Pichia* cell.

15. A composition comprising a recombinant foodstuff preserving enzyme (rFPE) wherein the rFPE has an activity of greater than about 90,000 Shugar U/mg.
16. The composition of claim 15, wherein the rFPE has an activity of greater than about 150,000 Shugar U/mg.
17. The composition of claim 15 or claim 16, wherein the rFPE is produced in a *Pichia pastoris* cell.
18. The composition of any one of claims 15 to 17, wherein the composition is a food composition.
19. The composition of claim 18, wherein the food composition comprises one or more consumable ingredients.
20. The composition of claim 18 or claim 19, wherein the food composition has a longer shelf life than a nearly identical food composition which does not comprise the rFPE.
21. The composition of any one of claims 18-20, wherein the food composition has a longer shelf life than the shelf life of a nearly identical product which comprises chicken egg-white muramidase rather than the rFPE.
22. The composition of any one of claims 15-21, wherein the composition is a powder composition comprising rFPE.
23. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 1.
24. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 1.
25. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 2.
26. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 2.
27. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 3.
28. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 3.
29. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 4.
30. The composition of any one of claims 15-22, wherein the rFPE comprises an amino acid sequence with at least 97% identity to SEQ ID NO: 4.
31. The composition of any one of claims 15-22, wherein the composition is hypoallergenic as compared to a nearly identical composition comprising chicken egg-white muramidase.

32. The composition of any one of claims 15-22, wherein the rFPE has higher activity as compared to a non-recombinant FPE and/or a chicken muramidase.
33. The composition of any one of claims 15-22, wherein the rFPE has an activity of greater than about 200,000 Shugar U/mg.
34. The composition of any one of claims 15-22, wherein the rFPE has an activity of greater than about 300,000 Shugar U/mg.
35. The composition of any one of claims 15-22, wherein the rFPE has an activity in Shugar units of greater than about 450,000 Shugar U/mg.
36. The composition of any one of claims 15-22, wherein one Shugar unit is an amount of the enzyme which will digest a suspension of *M. luteus* cells causing a decrease in absorbance of the solution at a rate of 0.001 per minute at 37°C, pH 7.0.
37. A consumable composition comprising a recombinant foodstuff preserving enzyme (rFPE), wherein the FPE comprises an amino acid sequence with at least 95% identity to SEQ ID NO: 1.
38. The consumable composition of claim 37, wherein the consumable composition is a food composition.
39. The consumable composition of claim 37 or claim 38, wherein the food composition has a gel-like texture or consistently.
40. The consumable composition of claim 37 or claim 38, wherein the food composition is in the form of a baked product.
41. The consumable composition of any one of claims 37 to 40, wherein the food composition is in the form of an egg-white-like product.
42. The consumable composition of claim 37 or claim 38, wherein the food composition is in liquid form.
43. The consumable composition of claim 37 or claim 38, wherein the food composition is in solid form.
44. The composition of any one of claims 37 to 43, wherein the composition has a shelf life longer than or comparable to than the shelf life of a nearly identical composition which comprises chicken egg-white muramidase rather than the rFPE.
45. The consumable composition of any one of claims 37 to 44, wherein the food composition has at least 0.05% rFPE by weight.
46. The consumable composition of any one of claim 37 to 45, wherein the food composition has at most 10% rFPE by weight.

47. The consumable composition of any one of claim 37 to 46, wherein the consumable composition is an ingredient.
48. The consumable composition of any one of claim 37 to 47, wherein the food composition is substantially free of microorganisms or bacterial cell-debris.
49. The consumable composition of any one of claim 37 to 48, wherein the food composition is a probiotic formulation.
50. The consumable composition of any one of claims 37 to 49, wherein the rFPE is at least 80% pure.
51. The consumable composition of any one of claims 37 to 50, wherein the food composition comprises more than one recombinant protein in addition to the rFPE.
52. The consumable composition of any one of claims 37 to 51, wherein the rFPE provides gel solidity or increased viscosity to the food product.
53. The consumable composition of any one of claims 37 to 52, wherein the food product does not comprise a gelling agent other than the rFPE.
54. The consumable composition of any one of claims 37 to 53, wherein the rFPE is recombinantly produced in *Pichia pastoris* cells.
55. A method of preparing a consumable composition comprising steps of:
 - a. providing an isolated foodstuff preserving enzyme (FPE) which is recombinantly produced, wherein the FPE is a goose type FPE (gFPE);
 - b. combining the recombinantly produced FPE with one or more consumable ingredients.
56. The method of claim 55, wherein the recombinantly produced gFPE has an amino acid sequence with at least 95% sequence identity to one of SEQ ID NOs: 1-4.
57. The method of claim 55 or claim 56, wherein the recombinantly produced gFPE is recombinantly produced in a yeast cell.
58. The method of claim 57, wherein the yeast cell is *Pichia pastoris*.
59. The method of any one of claims 55 to 58, wherein the recombinantly produced gFPE increases the shelf life of the consumable composition relative to a nearly identical consumable composition lacking the recombinantly produced gFPE or comprising chicken egg-white muramidase rather than the FPE.
60. The method of any one of claims 55 to 59, wherein the recombinantly produced gFPE provides a gel-like texture to the consumable composition or increases the viscosity of the consumable composition.
61. The method of any one of claims 55 to 60, wherein the consumable composition is a food product that is ready for consumption by a human/animal.

62. A method of producing an isolated xanthan gum product comprising the steps of:
- providing *X. campestris* cells into a fermentation medium;
 - heat treating the cells at a temperature between 45-60°C with at a pH of between 8-10 and an alkaline protease, thereby producing a solution comprising cell debris;
 - adding to a solution comprising cell debris a foodstuff preserving enzyme (FPE) that is recombinantly produced and/or a recombinantly produced FPE comprising an amino acid sequence with at least 95% identity to SEQ ID NO: 1, thereby producing a xanthan gum solution;
 - adding an alcohol to the xanthan gum solution, thereby precipitating xanthan gum; and
 - isolating and drying the precipitated xanthan gum, thereby obtaining an isolated xanthan gum product.
63. The method of claim 62, wherein an amount of the FPE added is less than the amount of chicken egg-white FPE that would be needed to produce an equivalent amount of the xanthan gum product under otherwise identical conditions.
64. The method of claim 62 or claim 63, further comprising a step of adjusting the pH of the composition after producing a solution comprising cell debris.
65. A method of preparing a consumable composition comprising combining a xanthan gum product produced according to the method of any one of claims 62 to 64 with one or more additional ingredients to form the consumable composition.
66. A food preservative comprising a recombinantly produced food preserving enzyme (FPE) with at least 95% identity to SEQ ID NO: 1.