

tions are: gellan at 0.17 wt %, imidazole at 44 mM and boric acid at 200 mM. Optionally the solution could be further combined with the size-separation property modifying polymer solution, where the final concentration of the polymer can be adjusted depending upon the biomolecules to be resolved. The solution was then heated to a temperature in excess of 75° C. At this point, cystamine was added so that its final concentration was between 2.5 to 10 mM. Optionally, nucleic acid stain may also be added. The solution was then poured into the gel tray and allowed to solidify. A comb was then suspended in the gel to form the sample wells. A flat bed submarine gel electrophoresis apparatus was used. The electrode buffer chambers were filled with the electrophoresis buffer (44 mM imidazole and 200 mM boric acid). The samples of biomolecules were diluted with a buffer solution containing a trace of bromophenol blue, so the final concentration of the samples was approximately 2 wt %. The samples were loaded into the wells. 2.5 mM cross-linker was added to the anode chamber and the electric field was applied. Typically, the gel can be run at 7 volts/cm.

Example 5

Formation of Gellan Electrophoresis Gels Using Cystamine and Gel Liquefaction

Strong stable gels were formed when cystamine (5 mM) in imidazole/boric acid buffer (44 mM imidazole, 200 mM boric acid, pH=6.8) was added to gellan suspension to form a gellan electrophoresis gel (0.1 wt %). A solution of dithiothreitol (0.01 mol/L) was added to the gellan electrophoresis gel (0.01%) whereupon the gel converted back to solution.

All of the above U.S. patents, U.S. patent application publications, U.S. patent applications, foreign patents, foreign patent applications and non-patent publications referred to in this specification and/or listed in the Application Data Sheet, are incorporated herein by reference, in their entirety.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

What is claimed is:

1. A purified gellan composition containing nucleic acid at a concentration of less than 10 ppm based on the weight of gellan prepared by combining DNase and an unpurified gellan composition contaminated with nucleic acid to make a mixture wherein said mixture is maintained under conditions such that DNase degrades at least some of the nucleic acid, thereby resulting in the purified gellan composition.

2. The purified gellan composition of claim 1 wherein the concentration of nucleic acid in the unpurified gellan composition is more than 100 ppm based on the weight of gellan.

3. The purified gellan composition of claim 1 wherein the purified gellan composition contains less than 50% of the nucleic acid in the unpurified gellan composition.

4. The purified gellan composition of claim 1 wherein said mixture further comprises a DNase activating agent.

5. The purified gellan composition of claim 4 wherein the DNase activating agent is sodium azide.

6. The purified gellan composition of claim 1 wherein said mixture is maintained at 30-45° C. for at least 1 hour.

7. The purified gellan composition of claim 1 wherein in preparing the purified gellan composition, nucleic acid degradation is monitored.

8. The purified gellan composition of claim 1 wherein after the mixture is maintained under conditions such that DNase degrades at least some of the nucleic acid, the DNase is deactivated.

9. The purified gellan composition of claim 8 wherein the DNase is heat deactivated by heating the DNase to an inactivating temperature in excess of 50° C.

10. The purified gellan composition of claim 1 wherein the DNase is DNase 1.

11. The purified gellan composition of claim 1 wherein in preparing the purified gellan composition, boric acid is added to the unpurified gellan composition or the purified gellan composition.

12. The purified gellan composition of claim 1 wherein in preparing the purified gellan composition, imidazole is added to the unpurified gellan composition or the purified gellan composition.

13. The purified gellan composition of claim 1 wherein in preparing the purified gellan composition, a size-separation property modifying polymer is added to the unpurified gellan composition or the purified gellan composition.

14. The purified gellan composition of claim 13 wherein the size-separation property modifying polymer is poly(ethylene oxide).

15. A gellan composition comprising water and gellan, the composition containing either no nucleic acid or nucleic acid at a concentration of less than 10 ppm based on the weight of the gellan.

16. The gellan composition of claim 15 that contains either no nucleic acid or nucleic acid at a concentration of less than 5 ppm based on the weight of the gellan.

17. The gellan composition of claim 15 that contains either no nucleic acid or nucleic acid at a concentration of less than 1 ppm based on the weight of the gellan.

18. A gellan composition, comprising:

(a) gellan; and

(b) either no nucleic acid or nucleic acid at a concentration of less than 10 ppm nucleic acid, based on the weight of gellan.

19. The composition of claim 18 further comprising a size-separation property modifying polymer.

20. The composition of claim 19 wherein the size-separation property modifying polymer is poly(ethylene oxide).

21. The composition of claim 18 further comprising a buffer for maintaining said composition at a pH of 5-9.

22. The composition of claim 21 wherein the buffer comprises imidazole or a salt thereof and boric acid or a salt thereof.

23. The composition of claim 18 further comprising EDTA or a salt thereof.

24. The composition of claim 18 further comprising a size-separation property modifying polymer, imidazole or a salt thereof, boric acid or a salt thereof, and EDTA or a salt thereof.

25. The composition of claim 18 further comprising a cross-linking agent.

26. The composition of claim 25 wherein the cross-linking agent is cystamine.

27. A kit comprising:

(a) a matrix composition comprising gellan and nucleic acid at a concentration of less than 10 ppm based on the weight of the gellan;

(b) buffer; and

(c) cross linking agent.

28. The kit of claim 27 wherein the nucleic acid is present in the matrix composition at a concentration of less than 5 ppm based on the weight of the gellan.