SUMMARY

[0005] This present disclosure relates generally to a method of enhancing brain development and CNS maturation in individuals, namely infants and preterm infants as defined herein, and protection from oxidative stress, by administering a mixture of optimized natural alpha- and gamma-tocopherols, optionally in combination with various vitamins, minerals and macronutrients, in a nutritional composition.

[0005a] The present disclosure also relates to a nutritional composition comprising fat, protein, carbohydrates, minerals and from about 5 mg/L to about 100 mg/L of an optimized tocopherol blend having a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol of from about 3:1 to about 15:1 and less than about 8 mg/L of non-RRR alpha-tocopherol isomer.

[0005b] The present disclosure also relates to the use of a nutritional composition comprising:

i) from about 20 g/L to about 50 g/L of a source of fat;

ii) from about 10 g/L to about 15 g/L of protein; wherein said source of fat comprises RRR alpha-tocopherol and RRR gamma-tocopherol, with a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol ranging from about 3.5:1 to about 10:1; and

iii) no more than about 8 mg/L of a non-RRR alpha-tocopherol isomer, in the manufacture of a medicament for treating neurodegenerative disease or another disease that impairs cognition in an individual.

[0006] The nutritional composition may comprise fat, protein, carbohydrates, minerals and from about 5 mg/L to about 100 mg/L of an optimized tocopherol blend having a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol of from about 2:1 to about 20:1, and less than about 8 mg/L of non-RRR alpha-tocopherol isomer. The weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol may also be from about 3:1 to about 15:1. The weight ratio of RRR alpha-tocopherol to

[0007] RRR gamma-tocopherol may also be from about 4:1 to about 10:1. The weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol may also be about 5:1.

[0008] The nutritional composition may be an infant formula which may be a liquid or a powdered nutritional product. The composition may have from about 20 g/L to about 50 g/L fat, from about 10 g/L to about 15 g/L protein, and at least about 4 mg/L of RRR alpha-tocopherol. The composition may also comprise one or more materials including, but not limited to, a polyunsaturated fatty acid selected from arachidonic acid, docosahexaenoic acid, and a combination thereof, vitamin C, carotenoids, and trans-lutein.

[0009] The nutritional composition may be used to enhance brain development in individuals, namely infants and/or preterm infants, by administering a nutritional composition, in the form of an infant formula or a preterm infant formula, comprising: i) from about 20 g/L to about 50 g/L of fat; ii) from about 10 g/L to about 15 g/L of protein; wherein said fat includes oils comprising RRR alpha-tocopherol and RRR gamma-tocopherol, with a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol ranging from about 3.5:1 to about 10:1; and iii) no more than about 8 mg/L of a non-RRR alpha-tocopherol isomer. The weight ratio of RRR alpha-tocopherol to

WHAT IS CLAIMED IS:

1. A nutritional composition comprising fat, protein, carbohydrates, minerals and from about 5 mg/L to about 100 mg/L of an optimized tocopherol blend having a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol of from about 2:1 to about 20:1 and less than about 8 mg/L of non-RRR alpha-tocopherol isomer.

2. The nutritional composition of claim 1, wherein the nutritional composition comprises less than about 5 mg/L of non-RRR alpha-tocopherol isomer.

3. The nutritional composition of claim 1, wherein the nutritional composition comprises less than about 0.5 mg/L of non-RRR alpha-tocopherol isomer.

4. The nutritional composition of claim 1, wherein the nutritional composition is substantially free of non-RRR alpha-tocopherol isomer.

5. The nutritional composition of claim 1, wherein the weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol ranges from about 3:1 to about 15:1.

6. The nutritional composition of claim 1, wherein the weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol ranges from about 4:1 to about 10:1.

7. The nutritional composition of claim 1, wherein the weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol is about 5:1.

8. The nutritional composition of any one of claims 1-7, having: (i) from about 20 to about 50 g/L fat; ii) from about 10 to about 15 g/L protein; and iii) at least about 4 mg/L of RRR alpha-tocopherol.

9. The nutritional composition of any one of claims 1-8 wherein the nutritional composition comprises a polyunsaturated fatty acid selected from arachidonic acid, docosahexaenoic acid, and a combination thereof.

10. The nutritional composition of any one of claims 1-9 wherein the nutritional composition comprises vitamin C.

11. The nutritional composition of any one of claims 1-10 wherein the nutritional composition comprises a carotenoid.

12. The nutritional composition of any one of claims 1-11 wherein the nutritional composition comprises trans-lutein.

13. The nutritional composition of any one of claims 1-12 wherein the nutritional composition is a liquid nutritional product.

14. The nutritional composition of any one of claims 1-13 wherein the nutritional composition is a powdered nutritional product.

15. The nutritional composition of any one of claims 1-14 wherein the nutritional composition is an infant formula.

16. The nutritional composition of any one of claims 1-15 wherein the nutritional composition is a preterm infant formula.

17. Use of a nutritional composition comprising: i) from about 20 g/L to about 50 g/L of fat; ii) from about 10 g/L to about 15 g/L of protein; wherein said fat comprises RRR alpha-tocopherol and RRR gamma-tocopherol, with a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol ranging from about 3.5:1 to about 10:1; and iii) no more than about 8 mg/L of a non-RRR alpha-tocopherol isomer, in the manufacture of a medicament for enhancing brain development in an individual.

18. The use of claim 17, wherein the weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol is about 5:1.

19. The use of claim 17, wherein the nutritional composition comprises one or more materials selected from a carbohydrate, a polyunsaturated fatty acid, a carotenoid, vitamin C, trans-lutein, and a combination thereof.

20. The use of claim 17, wherein the nutritional composition is substantially free of non-RRR alpha-tocopherol isomer.

21. The use of any one of claims 17-20, wherein said individual is an infant.

22. The use of any one of claims 17-20, wherein said individual is a preterm infant.

23. The use of any one of claims 17-21, wherein said nutritional composition comprises an infant formula.

24. The use of any one of claims 17-20 and 22, wherein said nutritional composition comprises a preterm infant formula.

WHAT IS CLAIMED IS:

1. A nutritional composition comprising fat, protein, carbohydrates, minerals and from about 5 mg/L to about 100 mg/L of an optimized tocopherol blend having a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol of from about 3:1 to about 15:1 and less than about 8 mg/L of non-RRR alpha-tocopherol isomer.

2. The nutritional composition of claim 1, wherein the nutritional composition comprises less than about 5 mg/L of non-RRR alpha-tocopherol isomer.

3. The nutritional composition of claim 1, wherein the nutritional composition comprises less than about 0.5 mg/L of non-RRR alpha-tocopherol isomer.

4. The nutritional composition of claim 1, wherein the nutritional composition is substantially free of non-RRR alpha-tocopherol isomer.

5. The nutritional composition of claim 1, wherein the weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol ranges from about 4:1 to about 10:1.

6. The nutritional composition of claim 1, wherein the weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol is about 5:1.

7. The nutritional composition of any one of claims 1-6, having:
   i) from about 20 to about 50 g/L fat;
   ii) from about 10 to about 15 g/L protein; and
   iii) at least about 4 mg/L of RRR alpha-tocopherol.

8. The nutritional composition of any one of claims 1-7, wherein the nutritional composition comprises a polyunsaturated fatty acid selected from arachidonic acid, docosahexaenoic acid, and a combination thereof.

9. The nutritional composition of any one of claims 1-8, wherein the nutritional composition comprises vitamin C.

10. The nutritional composition of any one of claims 1-9, wherein the nutritional composition comprises a carotenoid.

11. The nutritional composition of any one of claims 1-10, wherein the nutritional composition comprises trans-lutein.

12. The nutritional composition of any one of claims 1-11, wherein the nutritional composition is a liquid nutritional product.

13. The nutritional composition of any one of claims 1-11, wherein the nutritional composition is a powdered nutritional product.

14. The nutritional composition of any one of claims 1-13, wherein the nutritional composition is an infant formula.

15. The nutritional composition of any one of claims 1-13, wherein the nutritional composition is a preterm infant formula.

16. Use of a nutritional composition comprising:

i) from about 20 g/L to about 50 g/L of a source of fat;

ii) from about 10 g/L to about 15 g/L of protein; wherein said source of fat comprises RRR alpha-tocopherol and RRR gamma-tocopherol, with a weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol ranging from about 3.5:1 to about 10:1; and

iii) no more than about 8 mg/L of a non-RRR alpha-tocopherol isomer, in the manufacture of a medicament for treating neurodegenerative disease or another disease that impairs cognition in an individual.

17. The use of claim 16, wherein the weight ratio of RRR alpha-tocopherol to RRR gamma-tocopherol is about 5:1.

18. The use of claim 16, wherein the nutritional composition comprises one or more materials selected from a carbohydrate, a polyunsaturated fatty acid, a carotenoid, vitamin C, trans-lutein, and a combination thereof.

19. The use of claim 16, wherein the nutritional composition is substantially free of non-RRR alpha-tocopherol isomer.

20. The use of any one of claims 16-19, wherein said individual is an infant.

21. The use of any one of claims 16-19, wherein said individual is a preterm infant.

22. The use of any one of claims 16-20, wherein said nutritional composition comprises an infant formula.

23. The use of any one of claims 16-19 and 21, wherein said nutritional composition comprises a preterm infant formula.