CLAIMS

What is claimed is:

1. A refined, bleached, and/or deodorized (RBD) microbial oil composition produced by an oleaginous yeast.

~~2. A refined, bleached, and/or deodorized (RBD) microbial oil composition produced by an oleaginous yeast, wherein the composition comprises ergosterol and does not comprise campesterol, β-sitosterol, or stigmasterol.~~

~~3. A refined and/or deodorized microbial oil composition produced by an oleaginous yeast, wherein the composition comprises at least one pigment selected from the group consisting of carotene, torulene and torulorhodin and does not comprise chlorophyll.~~

~~4. The composition of claim 3, wherein the composition is bleached, thereby producing an RBD microbial oil composition, but wherein a measurable amount of the pigment remains.~~

~~5. A refined, bleached, and/or deodorized (RBD) microbial oil composition produced by an oleaginous yeast, wherein the composition is fractionable into two fractions, wherein the two fractions are microbial olein and microbial stearin, wherein each fraction comprises at least 10% of the composition's original mass, and wherein the iodine value (IV) of the fractions differs by at least 10.~~

~~6. A microbial oil composition produced by an oleaginous yeast, wherein the composition comprises the following amounts of fatty acids relative to the total fatty acids:~~

~~a) at least about 30% w/w saturated fatty acids with chain lengths between 16 and 18 carbons long;~~

~~b) at least about 30% w/w unsaturated fatty acids with 18 carbon chain lengths, and~~

~~c) less than about 30% w/w total polyunsaturated fatty acids.~~

~~7. A refined, bleached, and/or deodorized (RBD) microbial oil composition produced by an oleaginous yeast, wherein the composition has one or more characteristics similar to plant derived palm oil selected from the group consisting of: apparent density,~~

~~refractive index, saponification value, unsaponifiable matter, iodine value, slip melting point, fatty acid composition, triglyceride content, overall saturation level, and level of mono- and poly-unsaturated fatty acids.~~

~~8. A microbial oil composition produced by an oleaginous yeast, comprising:~~

~~a) at least about 30% w/w saturated fatty acids with chain lengths between 16 and 18 carbons long;~~

~~b) at least about 30% w/w unsaturated fatty acids with 18 carbon chain lengths;~~

~~c) less than about 30% w/w total polyunsaturated fatty acids;~~

~~d) at least about 50 ppm ergosterol;~~

~~wherein the composition does not contain a phytosterol or chlorophyll, and wherein the composition has one or more characteristics similar to plant-derived palm oil selected from the group consisting of iodine value, triglyceride content, slip melting point, oxidative stability, and overall saturation level.~~

~~9.~~2. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises 10-45% C16 saturated fatty acid.

~~10.~~3. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises 10-70% C18 unsaturated fatty acid.

~~11.~~4. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises 3-30% C18 saturated fatty acid.

~~12. The composition of any one of claims 1-8, wherein the composition comprises a saponification value similar to that of plant-derived palm oil.~~

~~13. The composition of any one of claims 1-8, wherein the composition comprises a saponification value of 150-210.~~

~~14. The composition of any one of claims 1-8, wherein the composition comprises an iodine value similar to that of plant-derived palm oil.~~

~~15. The composition of any one of claims 1-8, wherein the composition comprises an iodine value of 50-65.~~

~~16. The composition of any one of claims 1-8, wherein the composition comprises a slip melting point similar to that of plant-derived palm oil.~~

~~17. The composition of any one of claims 1-8, wherein the composition comprises a slip melting point of 30°C-40°C.~~

~~18. The composition of any one of claims 1-8, wherein the composition comprises a saturated fatty acid composition similar to that of plant-derived palm oil.~~

~~19.~~5. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises a saturated fatty acid composition of at least 1~~3~~0%.

~~20.~~6. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises a saturated fatty acid composition of at most 70%.

~~21. The composition of any one of claims 1-8, wherein the composition comprises an unsaturated fatty acid composition similar to that of plant-derived palm oil.~~

~~22.~~7. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises an unsaturated fatty acid composition of at least 30%.

~~23.~~8. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises an unsaturated fatty acid composition of at most 70%.

~~24. The composition of any one of claims 1-8, wherein the composition comprises a mono- and poly-unsaturated fatty acid composition similar to that of plant-derived palm oil.~~

~~25.~~9. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises about 5~~30~~-6~~5~~0% mono-unsaturated fatty acids as a percentage of overall fatty acids.

~~26.~~10. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises less than about 30% w/w total polyunsaturated fatty acids~~5-25% poly-unsaturated fatty acids as a percentage of overall fatty acids~~.

~~27. The composition of any one of claims 1-8, wherein the composition comprises a triglyceride content similar to that of plant-derived palm oil.~~

~~28.~~11. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises a triglyceride content of 90-98% as a percentage of overall glycerides.

29.12. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition ~~comprises less than 100 ppm of, comprises less than 50 ppm of, or~~ does not comprise a sterol selected from a phytosterol, cholesterol, or a prototheca sterol.

~~30. The composition of any one of claims 1-8, wherein the composition comprises less than 100 ppm of, comprises less than 50 ppm of, or does not comprise a phytosterol.~~

31.13. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition ~~comprises less than 100 ppm of, comprises less than 50 ppm of, or~~ does not comprise a phytosterol selected from the group consisting of campesterol, β-sitosterol, and stigmasterol.

~~32. The composition of any one of claims 1-8, wherein the composition comprises less than 100 ppm of, comprises less than 50 ppm of, or does not comprise cholesterol.~~

~~33. The composition of any one of claims 1-8, wherein the composition comprises less than 100 ppm of, comprises less than 50 ppm of, or does not comprise prototheca sterol.~~

34.14. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises ergosterol, comprises at least 50 ppm ergosterol, or comprises at least 100 ppm ergosterol.

35.15. The composition of ~~any one of~~ claim 1~~-8~~, wherein the composition comprises an ergosterol content of at least 60% w/w as a percentage of overall sterols.

36.16. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition does not comprise a pigment.

37.17. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition does not comprise chlorophyll.

38.18. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition comprises a pigment selected from the group consisting of carotene, torulene and torulorhodin.

~~39. The composition of any one of claims 1-8, wherein the composition comprises each of carotene, torulene and torulorhodin.~~

~~40. The composition of any one of claims 1-8, wherein the composition comprises at least 10 ppm, at least 50 ppm, or at least 100 ppm carotene.~~

~~41. The composition of any one of claims 1-8, wherein the composition comprises carotene, and wherein the carotene is β-carotene and/or a derivative thereof.~~

~~42. The composition of any one of claims 1-8, wherein the composition comprises at least 10 ppm, at least 50 ppm, or at least 100 ppm torulene and/or a derivative thereof.~~

~~43. The composition of any one of claims 1-8, wherein the composition comprises at least 10 ppm, at least 50 ppm, or at least 100 ppm torulorhodin and/or a derivative thereof.~~

~~44.~~19. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the oleaginous yeast is a recombinant yeast.

~~45.~~20. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the oleaginous yeast is of the genus Yarrowia, Candida, Rhodotorula, Rhodosporidium, Metschnikowia, Cryptococcus, Trichosporon, or Lipomyces.

~~46.~~21. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the oleaginous yeast is of the genus *Rhodosporidium*.

~~47.~~22. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the oleaginous yeast is of the species *Rhodosporidium toruloides*.

~~48.~~23. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition is fractionable.

~~49.~~24. The composition of ~~any one of~~ claim~~s~~ 1~~-8~~, wherein the composition is fractionable, and wherein:

a) the composition may be fractionated into microbial olein and microbial stearin; b) each fraction comprises at least 10% of the composition's starting mass; and/or c) the iodine value (IV) of the fractions differs by at least 10.

~~50. The composition of any one of claims 1-8, wherein the composition may be fractionated into microbial olein and microbial stearin, and wherein each fraction comprises at least 10% of the composition's starting mass.~~

~~51. The composition of any one of claims 1-8, wherein the composition may be fractionated into microbial olein and microbial stearin, and wherein the iodine value (IV) of the fractions differs by at least 10.~~

~~52. The composition of any one of claims 1-8, wherein the composition may be fractionated into microbial olein and microbial stearin, and wherein the IV of the fractions differs by at least 20.~~

~~53. The composition of any one of claims 1-8, wherein the composition may be fractionated into microbial olein and microbial stearin, and wherein the IV of the fractions differs by at least 30.~~

~~54.~~25. The composition of claim 1~~A microbial oil composition produced by an oleaginous yeast~~, wherein the composition comprises:

a) less than 10% w/w palmitic-palmitic-palmitic triglycerides;

b) greater than 15% w/w palmitic-palmitic-oleic triglycerides; and

c) greater than 15% w/w oleic-oleic-palmitic triglycerides.

~~55. The microbial oil composition of claim 54, wherein said palmitic-palmitic-palmitic triglyceride content is between about 0.8% and 1.3% w/w.~~

~~56. The microbial oil composition of claim 54, wherein said palmitic-palmitic-oleic triglyceride content is between about 16.9% and 28.2% w/w.~~

~~57. The microbial oil composition of claim 54, wherein said oleic-oleic-palmitic triglyceride content is between about 15.7% and 26.0% w/w.~~

~~58.~~26. The ~~microbial oil~~ composition of claim 1~~54~~, wherein the composition comprises~~further comprising~~ a stearic-stearic-oleic triglyceride content of less than 10% w/w and a stearic-oleic-oleic triglyceride content of less than 10% w/w.

~~59. The microbial oil composition of claim 58, wherein said stearic-stearic-oleic triglyceride content is between about 1.2% and 1.9% w/w.~~

~~60. The microbial oil composition of claim 58, wherein said stearic-oleic-oleic triglyceride content is between about 3.2% and 5.4% w/w.~~

~~61.~~27. The composition of claim 1~~A microbial oil composition produced by an oleaginous yeast, wherein the composition comprises triglycerides~~, ~~and~~ wherein greater than 40% of ~~said~~ triglycerides in the composition have one unsaturated sidechain.

~~62.~~28. The ~~microbial oil~~ composition of claim ~~6~~1, wherein greater than 30% of ~~said~~ triglycerides in the composition have two unsaturated sidechains.

~~63.~~29. The composition of ~~any one of claims 54-62~~claim 1, wherein between 10% and 15% of palmitic and/or stearic fatty acids are located at the sn-2 position of triglyceride molecules in the composition.

~~64. A microbial oil composition produced by an oleaginous yeast, wherein the composition comprises the following amounts of fatty acids relative to the total fatty acids:~~

~~a) between about 7.0% and 35% stearic acid;~~

~~b) between about 10% and 50% oleic acid; and~~

~~c) between about 8% and 20% linoleic acid.~~

~~65.~~30. A method of producing the~~a~~ microbial oil composition according to ~~any one of claims 1-8, 54, 61, and 64~~claim 1, the method comprising the steps of:

a) providing an oleaginous yeast and a carbon source, and

b) culturing said oleaginous yeast,

thereby producing said microbial oil composition.