[5a] In one aspect, the present disclosure refers to a microbial oil composition produced by an oleaginous yeast, wherein the composition comprises:. a) at least 28% w/w C16:0 saturated fatty acid; b) at least 11% w/w C18:0 saturated fatty acid; c) at least 45% w/w C18:1 monounsaturated fatty acid; d) less than 7% w/w C18:2 polyunsaturated fatty acid; and e) a sterol that is not a phytosterol.

[6] In one example, the present disclosure provides 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.

[7] In one example, the present disclosure provides 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.

[8] In some examples, the composition is bleached, thereby producing an RBD microbial oil composition, but wherein a measurable amount of the pigment remains.

[9] In one example, the present disclosure provides 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.

[10] In one example, the present disclosure provides 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: at least about 30% w/w saturated fatty acids with chain lengths between 16 and 18 carbons long; at least about 30% w/w unsaturated fatty acids with 18 carbon chain lengths; and less than about 30% w/w total polyunsaturated fatty acids.

[11] In one example, the present disclosure provides 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.

[12] In one example, the present disclosure provides a microbial oil composition produced by an oleaginous yeast, comprising: at least about 30% w/w saturated fatty acids with chain lengths between 16 and 18 carbons long; at least about 30% w/w unsaturated fatty acids with 18 carbon chain lengths; less than about 30% w/w total polyunsaturated fatty acids; at least about 50 ppm

CLAIMS

What is claimed is:

1. A microbial oil composition produced by an oleaginous yeast, wherein the composition comprises:
    a) at least 28% w/w C16:0 saturated fatty acid;
    b) at least 11% w/w C18:0 saturated fatty acid;
    c) at least 45% w/w C18:1 monounsaturated fatty acid;
    d) less than 7% w/w C18:2 polyunsaturated fatty acid; and
    e) a sterol that is not a phytosterol.
2. The composition of claim 1, wherein the composition comprises at most 45% w/w C16:0 saturated fatty acid.
3. The composition of claim 1, wherein the composition comprises at most 70% w/w C18 unsaturated fatty acid.
4. The composition of claim 1, wherein the composition comprises at most 30% w/w C18 saturated fatty acid.
5. The composition of claim 1, wherein the composition comprises a saturated fatty acid composition of at most 70% w/w.
6. The composition of claim 1, wherein the composition comprises an unsaturated fatty acid composition of at most 70% w/w.
7. The composition of claim 1, wherein the composition comprises at most 60% w/w mono-unsaturated fatty acids as a percentage of overall fatty acids.
8. The composition of claim 1, wherein the composition comprises less than 30% w/w total polyunsaturated fatty acids.
9. The composition of claim 1, wherein the composition comprises a triglyceride content of 90-98% w/w as a percentage of total lipids.

10. The composition of claim 1, wherein the composition does not comprise a sterol selected from a phytosterol, cholesterol, or a protothecasterol.

11. The composition of claim 1, wherein the composition does not comprise a phytosterol selected from the group consisting of campesterol, β-sitosterol, and stigmasterol.

12. The composition of claim 1, wherein the composition comprises ergosterol, comprises at least 50 ppm ergosterol, or comprises at least 100 ppm ergosterol.

13. The composition of claim 1, wherein the composition comprises an ergosterol content of at least 60% w/w as a percentage of overall sterols.

14. The composition of claim 1, wherein the composition does not comprise a pigment.

15. The composition of claim 1, wherein the composition does not comprise chlorophyll.

16. The composition of claim 1, wherein the composition comprises a pigment selected from the group consisting of carotene, torulene and torularhodin.

17. The composition of claim 1, wherein the oleaginous yeast is a recombinant yeast.

18. The composition of claim 1, wherein the oleaginous yeast is of the genus Yarrowia, Candida, Rhodotorula, Rhodosporidium, Metschnikowia, Cryptococcus, Trichosporon, or Lipomyces.

19. The composition of claim 1, wherein the oleaginous yeast is of the genus *Rhodosporidium.*

20. The composition of claim 1, wherein the oleaginous yeast is of the species *Rhodosporidium toruloides*.

21. The composition of claim 1, wherein the composition is fractionable.

22. The composition of claim 1, wherein the composition is fractionable into microbial olein and microbial stearin fractions, optionally wherein each fraction comprises at least 10% of the composition's starting mass, and/or optionally wherein the iodine value (IV) of the fractions differs by at least 10.

23. The composition of claim 1, 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.

24. The composition of claim 1, wherein the composition comprises 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.

25. The composition of claim 1, wherein greater than 40% w/w of triglycerides in the composition have one unsaturated sidechain.

26. The composition of claim 1, wherein greater than 30% w/w of triglycerides in the composition have two unsaturated sidechains.

27. The composition of claim 1, wherein between 10% w/w and 15% w/w of palmitic and/or stearic fatty acids are located at the sn-2 position of triglyceride molecules in the composition.

28. A method of producing the microbial oil composition according to 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.