Claims

1. A modified enzyme of SEQ ID NO: 3 with a sequence selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 21, SEQ ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28, SEQ ID NO: 65, SEQ ID NO: 66, SEQ ID NO: 67, SEQ ID NO: 68, SEQ ID NO: 69.

2. The modified enzyme according to claim 1, wherein the sequence is selected from the group consisting of SEQ ID NO: 15, SEQ ID NO: 28, SEQ ID NO: 68, and SEQ ID NO: 69.

3. A method of forming a first triglyceride, the method comprises mixing a second triglyceride, a first fatty acid, and the modified enzyme according to any one of claims 1 to 2; and forming the first triglyceride under suitable conditions, wherein the first triglyceride is a mixture of fatty acids from the second triglyceride and the first fatty acid.

4. The method according to claim 3, wherein the first fatty acid is regioselectively attached to the 1 and/or 3 position of the second triglyceride to form the first triglyceride.

5. The method according to claim 3 or 4, wherein the second triglyceride has identical fatty acids.

6. The method according to any one of claims 3 to 5, wherein the suitable conditions comprises a temperature of at least 55 °C, preferably 60 °C, and more preferably 70 °C.

7. The method according to any one of claims 3 to 6, wherein the first triglyceride is 1,3-dioleoyl-2-palmitoylglycerol (OPO), 1-oleoyl-2-palmitoyl-3-linoleoylglycerol (OPL), or 1,3-stearoyl-2-oleoyl-glycerol (SOS).

8. The method according to claim 7, wherein the first triglyceride is 1,3-dioleoyl-2-palmitoylglycerol (OPO), the second triglyceride is tripalmitin, and the first fatty acid is oleic acid.

9. The method according to claim 7, wherein the first triglyceride is 1,3-stearoyl-2-oleoyl-glycerol (SOS), the second triglyceride is triolein, and the fatty acid is stearic acid.

10. The method according to claim 3, wherein triolein is sourced from high oleic sunflower oil.

11. The method according to any one of claims 3 to 5, wherein the method comprises mixing a second fatty acid with the second triglyceride, the first fatty acid, and the modified enzyme, and the first triglyceride is a mixture of fatty acids from the second triglyceride, the first fatty acid and the second fatty acid, wherein the first fatty acid is different from the second fatty acid.

12. The method according to claim 11, wherein the first triglyceride is 1-oleoyl-2-palmitoyl-3-linoleoylglycerol (OPL), the second triglyceride is tripalmitin, the first fatty acid is oleic acid, and the second fatty acid is linoleic acid.

13. The method according to any one of claims 11 or 12, wherein a weight ratio of the first fatty acid to the second fatty acid is from 1:9 to 9:1.

14. The method according to claim 7, wherein tripalmitin is sourced from a fractionated fraction of palm oil enriched in tripalmitin.

15. A method of producing biodiesel, the method comprises mixing a fatty acid or a triglyceride, a short-chained alcohol, and the modified enzyme according to

any one of claims 1 to 2 under suitable conditions to form a fatty acid ester of the short-chained alcohol.

16. The method according to claim 15, wherein the short-chained alcohol is selected from the group consisting of methanol, ethanol, n-propanol and isopropanol.

17. The method according to claim 15 or 16, wherein the fatty acid or the triglyceride is one or more selected from crude palm oil, sludge oil, fatty matter, used or unused cooking oil, palm fatty acid distillate, tallow, and brown grease.