CLAIMS

1. A process of hydrolyzing hydrogenated castor oil to obtain 12-hydroxystearic acid, the process comprising
a step of mixing water, an organic solvent, and a lipase with the hydrogenated castor oil to form a mixture,
and a step of hydrolyzing the hydrogenated castor oil in the mixture to obtain 12-hydroxystearic acid with an acid value of higher than 160,
wherein the lipase comprises one or more lipase derived from *Thermomyces sp.* but not any monoacylglycerol lipase or any lipase derived from *Rhizomucor sp.*, and the organic solvent is any one selected from a sterically hindered alcohol, a non-polar organic solvent, and a mixture of a water-miscible organic solvent with a non-polar organic solvent.

2. The process of Claim 1, wherein the lipase derived from *Thermomyces sp.* is derived from *Thermomyces lanuginosus*.

3. The process of Claim 2, wherein the lipase derived from *Thermomyces sp.* is selected from Eversa Transform 2.0, Lipase LKT400XL, TLL-SH, derivatives thereof and mixtures thereof.

4. The process of any one of Claims 1 to 3, wherein the lipase derived from *Thermomyces sp.* is provided in solid form or in liquid solution form.

5. The process of Claim 4, wherein if the lipase derived from *Thermomyces sp.* is provided in liquid solution form, the ratio for the volume of the lipase derived from *Thermomyces sp.* in mL to the weight of the substrate hydrogenated castor oil in gram is not less than 0.2%, preferably not less than 0.3%, more preferably from 0.3% to 2%, even more preferably from 0.3% to 1%,; if the lipase derived from *Thermomyces sp.* is provided in solid form, the weight ratio of the lipase derived from *Thermomyces sp.* to the weight of the substrate hydrogenated castor oil is not less than 50 ppm of the hydrogenated castor oil, or not less than 57 ppm, or not less than 75 ppm, or not less than 156 ppm.

6. The process of any one of Claims 1 to 5, wherein the lipase derived from *Thermomyces sp.* is added once or in batch.

7. The process of any one of Claims 1 to 6, wherein optionally the oil is melted or grinded to a powder form before the step of mixing.

8. The process of any one of Claims 1 to 7, wherein the non-polar organic solvent is a saturated hydrocarbon containing 5 to 12 carbons, preferably alkane or cycloalkane containing 5 to 12 carbons; and/or
the non-polar organic solvent is selected from isooctane, n-heptane, cyclohexane, n-hexane, methyl tert-butyl ether (MTBE), diethyl ether, n-pentane, cyclopentane, petroleum ether, and mixtures thereof; and/or
the steric hindered alcohol is tert-butanol (t-BuOH); and/or
the water-miscible organic solvent is selected from acetone, tert-butanol and their mixture; and/or
in the mixture of a water-miscible organic solvent with a non-polar organic solvent, the volume ratio of the water-miscible organic solvent to the non-polar organic solvent is from 20:80 to 50:50.

9. The process of any one of Claims 1 to 8, wherein the step of hydrolyzing the oil is conducted under a temperature of 30 ℃ to 60 ℃.

10. The process of any one of Claims 1 to 9, wherein glycerol is generated during the step of hydrolyzing oil, and optionally there is a step of removing water, the glycerol, and the organic solvent after the step of hydrolyzing the oil.

11. The process of any one of Claims 1 to 10, wherein the 12-hydroxystearic acid product has an acid value of higher than 165, more preferably higher than 170, even more preferably higher than 175.

12. The process of any one of Claims 1 to 11, wherein the weight ratio of the water and the hydrogenated castor oil is from 15% to 300%, more preferably from 30% to 250% or from 100% to 300%; and/or

the ratio of the volume of the organic solvent in mL to the weight of the hydrogenated castor oil in gram is more than 75%, preferably, between 100% and 500%.