CLAIMS:

1. A process for separation and concentration of a starting oil comprising esters of polyunsaturated fatty acids, the process comprising subjecting the oil to more than two distillation steps, wherein a first distillation step comprises feeding the oil to at least one apparatus and subjecting the oil to conditions to remove low-boiling compounds in a distillate, and wherein a second distillation step comprises subjecting the oil to conditions to separate at least a portion of one esters of long-chain polyunsaturated fatty acid (LC-PUFA) which is esters of eicosapentaenoic acid (EPA) from at least a portion of a second esters of LC-PUFA which is esters of docosahexaenoic acid (DHA) so providing product oils, wherein said at least one apparatus in the second distillation step comprises a fractionating column that is attached to a wiped film evaporator, wherein the total isomer value of the product oil is less than 2% by weight.

2. The process of claim 1, wherein a third distillation step comprises subjecting the oil to conditions to separate at least an additional portion of one esters of long-chain polyunsaturated fatty acid (LC-PUFA) from a second esters of LC-PUFA.

3. The process of any one of the preceding claims, wherein any one of the distillation steps comprises short path distillation, fractional distillation, falling film evaporator, wiped film evaporator, or combinations thereof.

4. The process of any one of the preceding claims, wherein the at least one apparatus in the first distillation step is a short path distillation column or a fractionating column.

5. The process of any one of the preceding claims, wherein the apparatus in a second distillation step comprises a short-path distillation column or a fractionating column.

6. The process of any one of the preceding claims, wherein at least a portion of esters of eicosapentaenoic acid (EPA) is removed in the distillate of the first distillation step, preferably wherein at least 5% of esters of EPA is removed in the distillate, more preferably, wherein at least 10% of esters of EPA is removed in the distillate.

7. The process of any one of the preceding claims, wherein at least one esters of LC-PUFA is separated from a second esters of LC-PUFA in an amount of at least about 50%.

8. The process of any one of the preceding claims, wherein the wt% of at least one esters of LC-PUFA is increased in the product oils by at least about 20 wt% as compared to the wt% in the starting oil.

9. The process according to any one of the preceding claims, wherein the product oils comprises at least about 70% of a desired esters of PUFA, preferably, wherein the oil comprises at least about 80% of a desired esters of PUFA, more preferably, wherein the product oils comprises at least about 90% of a desired esters of PUFA.

10. The process according to any one of the preceding claims, wherein the starting oil is a microbial or marine oil.

11. The process according to claim 10, wherein the starting oil is a microbial oil.

12. The process according to claim 11, wherein the starting oil has been produced by a microorganism, wherein the microorganism is selected from the group comprising microalgae, bacteria, fungi and protists.

13. The process according to claim 12, wherein the microorganism is a microalgae.

14. The process according to claim 13, wherein the microalgae is of the genus *Cryptochodinium*, preferably, wherein the microalgae is of the species *Cryptochodinium cohnii*.

15. The process according to claim 13, wherein the microalgae is of the genus *Thraustochytrium*, preferably, wherein the microalgae is of the species *Schizochytrium sp.*