CLAIMS

1. A method of producing an encapsulated oil-soluble active ingredient dissolved in oil, the method comprising:

mixing an oil-soluble active ingredient dissolved in oil with a solution of octenyl succinic anhydride (OSA)-modified starch under high shear condition to form an oil-in-water emulsion;

mixing the oil-in-water emulsion with a pectin stock solution to obtain a suspension of microcapsules, wherein each of the microcapsules comprises a microcapsule wall formed from the OSA-modified starch from the solution of OSA-modified starch; and

adding a solution containing a cross-linker into the suspension of microcapsules to cause a cross-linking reaction in the suspension of microcapsules so as to form a cross-linked wall on each of the microcapsules, wherein each of the microcapsules comprises the oil-soluble active ingredient in oil, encapsulated within the cross-linked wall consisting of OSA-modified starch cross-linked with pectin, and wherein the microcapsules are dispersible in aqueous media.

2. A method of producing an encapsulated oil-soluble active ingredient dissolved in oil, the method comprising:

mixing an oil-soluble active ingredient dissolved in oil with a solution of modified starch and a pectin stock solution simultaneously under high shear condition to form an oil-in-water emulsion and gradually forming a suspension of microcapsules, wherein each of the microcapsules comprises a microcapsule wall formed from the OSA-modified starch from the solution of OSA-modified starch; and adding a solution containing a cross-linker into the suspension of microcapsules to cause a cross-linking reaction in the suspension of microcapsules so as to form a cross-linked wall on each of the microcapsules, wherein each of the microcapsules comprises the oil-soluble active ingredient dissolved in oil, encapsulated within the cross-linked wall consisting of OSA-modified starch cross-linked with pectin, and wherein the microcapsules are dispersible in aqueous media.

3. The method according to claim 2, wherein the solution of OSA-modified starch and the pectin stock solution are pre-mixed prior to mixing with the oil-soluble active ingredient dissolved in oil.

4. The method according to claim 2 or 3, wherein the solution of OSA-modified starch and the pectin stock solution are mixed at a ratio of 25:75 to 90:10 wt%.

5. The method according to claim 1 or 2, further comprising freeze-drying the microcapsules to obtain the encapsulated oil-soluble active ingredient dissolved in oil in powder form.

6. The method according to claim 1 or 2, wherein the cross-linker is selected from the group consisting of adipic acid dihydrazide and methylglyoxal.

7. The method according to claim 1 or 2, wherein the oil-soluble active ingredient is selected from the group consisting of astaxanthin, tocotrienols, carotenoids, oil-soluble vitamins, oil-soluble pigments and other oil soluble molecules.

8. The method according to claim 1 or 2, wherein the oil is selected from the group consisting of jojoba oil, sunflower oil, avocado oil.

9. An encapsulated product comprising:

a microcapsule comprising an oil-soluble active ingredient dissolved in oil, encapsulated within a cross-linked wall consisting of OSA-modified starch cross-linked with pectin;

wherein the microcapsule is dispersible in aqueous media.

10. The encapsulated product according to claim 9, wherein the encapsulated product comprises a plurality of microcapsules.

11. The encapsulated product according to claim 9, wherein the encapsulated product is in powder form.

12. The encapsulated product according to claim 9, wherein the oil-soluble active ingredient is selected from the group consisting of astaxanthin, tocotrienols, carotenoids, oil-soluble vitamins, oil-soluble pigments, and other oil soluble molecules .

13. The encapsulated product according to claim 9, wherein the oil is selected from the group consisting of jojoba oil, sunflower oil, avocado oil.

14. The encapsulated product according to claim 9, wherein the oil-soluble active ingredient in oil is astaxanthin dissolved in avocado oil.

15. The encapsulated product according to claim 9, wherein the oil-soluble active ingredient in oil is tocotrienols dissolved in sunflower oil.