What is claimed is:

1. A method for preparing a sulfur-free $ZnFe_2O_4$ catalyst, comprising the steps of:
   a. preparing a first solution by dissolving ethylenediaminetetraacetic acid (EDTA) in purified water, followed by adding a base until the pH is 3 to 10;
   b. preparing a second solution by dissolving a surfactant in purified water;
   c. adding the second solution dropwise to the first solution;
   d. preparing a third solution by dissolving a zinc salt and an iron (III) salt in purified water;
   e. adding the third solution dropwise into the solution resulting from step (c);
   f. drying the solution resulting from step (e) to form a dried mixed metal EDTA complex;
   g. calcining said dried mixed metal EDTA complex in air to obtain said $ZnFe_2O_4$ catalyst.

2. The method of claim 1, wherein said base is selected from the group consisting of ammonia water (NH_4OH), potassium hydroxide (KOH) and sodium hydroxide (NaOH).

3. The method of claim 1, wherein said surfactant is selected from the group consisting of polyvinylpyrrolidone (PVP), polyvinyl alcohol (PVA), poly(acrylic acid) (PAA), poly(malic acid), poly(acrylic acid-co-malic acid), poly(ethyleneimine) (PEI), ethylene glycol (EG), polyethylene glycol (PEG) and polyethylene glycol tert-octylphenyl ether.

4. The method of claim 1, wherein said surfactant has an

average molecular weight of 400 to 55000.

5. The method of claim 1, wherein said zinc salt is selected from the group consisting of zinc nitrate hexahydrate ($Zn(NO_3)_2 \cdot 6H_2O$), zinc chloride ($ZnCl_2$), zinc sulphate heptahydrate ($ZnSO_4 \cdot 7H_2O$), zinc oxalate (ZnC_2O_4), zinc acetate dihydrate ($Zn(CH_3COO)_2 \cdot 2H_2O$), zinc citrate dihydrate ($(C_6H_5O_7)_2Zn_3 \cdot 2H_2O$), zinc oxide (ZnO), zinc hydroxide ($Zn(OH)_2$), zinc carbonate ($ZnCO_3$) and zinc carbonate basic ($[ZnCO_3]_2 \cdot [Zn(OH)_2]_3$).

6. The method of claim 1, wherein said iron (III) salt is selected from the group consisting of iron (II) nitrate ($Fe(NO_3)_2$), iron (III) nitrate nonahydrate ($Fe(NO_3)_3 \cdot 9H_2O$), iron (II) chloride tetrahydrate ($FeCl_2 \cdot 4H_2O$), iron (III) chloride hexahydrate ($FeCl_3 \cdot 6H_2O$), iron (II) sulphate heptahydrate ($FeSO_4 \cdot 7H_2O$), iron (III) sulphate ($Fe_2(SO_4)_3$), iron (II) oxalate dihydrate ($FeC_2O_4 \cdot 2H_2O$), iron (III) oxalate hexahydrate ($Fe_2(C_2O_4)_3 \cdot 6H_2O$), iron (II) acetate ($Fe(CH_3COO)_2$), iron (III) citrate ($C_6H_5O_7Fe$), iron (II) oxide (FeO), iron (III) oxide (Fe_2O_3), iron (II) hydroxide ($Fe(OH)_2$), iron (III) hydroxide ($Fe(OH)_3$), iron (II) carbonate ($FeCO_3$), iron (III) carbonate ($Fe_2(CO_3)_3$) and iron oxide hydroxide (FeOOH).

7. The method of claim 1, wherein said mixed metal EDTA complex is calcined at a temperature ranging from 300 ^oC to 700 ^oC.

8. A method for transesterification, comprising the steps of:
   a. providing a sulfur-free $ZnFe_2O_4$ catalyst;
   b. contacting said catalyst with one or more alcohols and a composition comprising one or more esters to form a reaction mixture; and
   c. heating said reaction mixture to form transesterification products.

9. The method of claim 8, wherein said one or more esters are triglycerides, wherein the fatty acid portions of said triglycerides are selected from the group consisting of acetic acid, propanoic acid, butanoic acid, pentanoic acid, hexanoic acid, heptanoic acid, octanoic acid, nonanoic acid, capric acid, undecanoic acid, lauric acid, tridecanoic acid, myristic acid, myristoleic acid, pentadecanoic acid, palmitic acid, palmitoleic acid, sapienic acid, heptadecanoic acid, stearic acid, oleic acid, elaidic acid, vaccenic acid, petroselinic acid, linoleic acid, linolelaidic acid, linolenic acid, stearidonic acid, nonadecanoic acid, eicosanoic acid, gadoleic acid, gondoic acid, paullinic acid, dihomo-γ-linolenic acid, mead acid, arachidonic acid, eicosapentaenoic acid, heneicosanoic acid, behenic acid, erucic acid, adrenic acid, docosahexaenoic acid, tricosanoic acid, lignoceric acid, nervonic acid, pentacosanoic acid, hexacosanoic acid, heptacosanoic acid, octacosanoic acid, nonacosanoic acid, triacontanoic acid, hentriacontanoic acid, dotriacontanoic acid, tritriacontanoic acid, tetratriacontanoic acid, ceroplastic acid, hexatriacontanoic acid, heptatriacontanoic acid and octatriacontanoic acid.

10. The method of claim 8, wherein said one or more alcohols are selected from the group consisting of methanol, ethanol, propanol, butanol, pentanol, hexanol, heptanol, octanol, nonanol, decanol and the isomers thereof.

11. The method of claim 8, wherein said composition comprising one or more esters is a biodiesel feedstock.

12. The method of claim 8, wherein said composition further comprises one or more free fatty acids selected from the

group consisting of acetic acid, propanoic acid, butanoic acid, pentanoic acid, hexanoic acid, heptanoic acid, octanoic acid, nonanoic acid, capric acid, undecanoic acid, lauric acid, tridecanoic acid, myristic acid, myristoleic acid, pentadecanoic acid, palmitic acid, palmitoleic acid, sapienic acid, heptadecanoic acid, stearic acid, oleic acid, elaidic acid, vaccenic acid, petroselinic acid, linoleic acid, linolelaidic acid, linolenic acid, stearidonic acid, nonadecanoic acid, eicosanoic acid, gadoleic acid, gondoic acid, paullinic acid, dihomo-γ-linolenic acid, mead acid, arachidonic acid, eicosapentaenoic acid, heneicosanoic acid, behenic acid, erucic acid, adrenic acid, docosahexaenoic acid, tricosanoic acid, lignoceric acid, nervonic acid, pentacosanoic acid, hexacosanoic acid, heptacosanoic acid, octacosanoic acid, nonacosanoic acid, triacontanoic acid, hentriacontanoic acid, dotriacontanoic acid, tritriacontanoic acid, tetratriacontanoic acid, ceroplastic acid, hexatriacontanoic acid, heptatriacontanoic acid and octatriacontanoic acid for enhancing the reaction rate and conversion of said one or more esters.

13. The method of claim 12, wherein said one or more free fatty acids make up at least 0.5 wt % of said composition.

14. The method of claim 12, wherein the number of moles of said one or more alcohols is at least six times the total number of moles of both said one or more esters and said one or more fatty acids.

15. The method of claim 8, wherein said reaction mixture is heated at a temperature ranging from 100 ^{o}C to 300 ^{o}C.

16. The method of claim 8, wherein said reaction mixture comprises 2 wt % to 8 wt % of $ZnFe_2O_4$.

17. A catalyst for catalyzing the esterification of fatty acids or transesterification of esters, comprising sulfur-free $ZnFe_2O_4$ spinel nanoparticles, wherein said $ZnFe_2O_4$ has a surface area ranging from 20 m^2/g to 100 m^2/g.

18. The catalyst of claim 17, wherein said $ZnFe_2O_4$ has a particle size ranging from 30 nm to 60 nm.

19. The catalyst of claim 17, wherein said $ZnFe_2O_4$ has a pore volume ranging from 0.1 ml/g to 0.6 ml/g.

20. The catalyst of claim 17, wherein said $ZnFe_2O_4$ has an average pore size ranging from 1 nm to 15 nm.