TABLE 8

Reactor Gas Effluent Concentrations, vol %		
Feed	Oleic Acid	50/50 Oleic Acid/Linoleic Acid
Sample Number	26-31*	32
H_2	14	13
CO	22	22
CO_2	20	19
N_2	42	42
Light Alkanes	2	4

*The average concentrations of the samples.

In view of the many possible embodiments to which the principles of the disclosed invention may be applied, it should be recognized that the illustrated embodiments are only preferred examples of the invention and should not be taken as limiting the scope of the invention. Rather, the scope of the invention is defined by the following claims. We therefore claim as our invention all that comes within the scope and spirit of these claims.

We claim:

1. A method, comprising:

providing a catalyst comprising a) Pt and MO_3 on ZrO_2 where M is W, Mo, or a combination thereof, b) Pt/Ge on carbon, c) Pt/Sn on carbon, or d) any combination thereof;

exposing a composition comprising fatty acids to the catalyst; and

deoxygenating at least 10% of the fatty acids with the catalyst to produce hydrocarbons.

2. The method of claim **1**, wherein deoxygenating comprises decarboxylating, decarbonylating, dehydrating, or any combination thereof.

3. The method of claim **1**, wherein the fatty acids are obtained from a plant oil, a plant fat, an animal fat, or any combination thereof.

4. The method of claim **1**, wherein the composition is exposed to the catalyst without added hydrogen.

5. The method of claim **4**, wherein at least 10% of the fatty acids in the composition are unsaturated fatty acids.

6. The method of claim **1**, wherein the composition is exposed to the catalyst at a pressure of less than 250 psi.

7. The method of claim **1**, wherein the composition is exposed to the catalyst at a pressure of less than 100 psi.

8. The method of claim **1**, wherein the fatty acids in the composition are free fatty acids, fatty acid esters, fatty acid monoglycerides, fatty acid diglycerides, fatty acid triglycerides, or any combination thereof.

9. The method of claim **1**, wherein at least 90% of the fatty acids in the composition are free fatty acids.

10. The method of claim **9**, further comprising forming the free fatty acids by providing a source of triglycerides and hydrolyzing the triglycerides to produce the free fatty acids and glycerol.

11. The method of claim **10**, further comprising:

separating the free fatty acids from the glycerol; and

recovering the glycerol.

12. The method of claim **10** further comprising hydrogenating the triglycerides before hydrolyzing the triglycerides.

13. The method of claim **1**, wherein the composition further comprises a hydrocarbon solvent.

14. The method of claim **13**, wherein the hydrocarbon solvent is obtained by recycling at least a portion of the hydrocarbons produced by deoxygenating fatty acids with the catalyst.

15. The method of claim **1**, wherein at least some of the fatty acids in the composition are unsaturated fatty acids, and further comprising hydrogenating at least 10% of unsaturated bonds in the unsaturated fatty acids prior to exposing the composition to the catalyst.

16. The method of claim **15**, further comprising storing the composition for a period of time prior to exposing the fatty acids to the catalyst.

17. The method of claim **1**, wherein the catalyst is at a temperature of at least 250° C. prior to exposing the composition to the catalyst, and the composition is not preheated before exposure to the catalyst.

18. The method of claim **1**, wherein the catalyst is at a temperature of at least 250° C. and the composition is preheated to a temperature of at least 50° C. before exposure to the catalyst.

19. The method of claim **1**, further comprising disposing the catalyst within a column and flowing the composition through the column.

20. The method of claim **19**, wherein exposing the composition to the catalyst comprises flowing the composition through the column at a WHSV of 0.1-2.0 hr^{-1}.

21. The method of claim **20**, wherein the WHSV is 0.3-1.0 hr^{-1}.

22. The method of claim **19**, further comprising concurrently flowing a gas through the column with the composition, wherein the gas is a) an inert gas, hydrogen, air, or oxygen, or b) a mixture of inert gas with hydrogen, air, oxygen, or a combination thereof.

23. The method of claim **19**, wherein the catalyst remains capable of deoxygenating at least 10% of the fatty acids for at least 200 minutes at a temperature of 200-500° C. and a WHSV of 0.1-2.0 hr^{-1}.

24. The method of claim **23**, wherein the catalyst remains capable of deoxygenating at least 10% of the fatty acids for at least 15,000 minutes.

25. The method of claim **1**, wherein at least 80% of the fatty acids are deoxygenated after exposure to the catalyst.

26. The method of claim **1**, wherein at least 90% of the fatty acids are saturated fatty acids and the catalyst is Pt and MO_3 on ZrO_2.

27. The method of claim **26**, wherein the catalyst comprises 0.1 wt % to 1.5 wt % Pt and 6 wt % to 30 wt % MO_3, relative to a mass of the catalyst.

28. The method of claim **26**, wherein the catalyst consists essentially of 0.7 wt % Pt and 12 wt % WO_3, relative to the mass of the catalyst.

29. The method of claim **26**, wherein the catalyst consists essentially of 0.7 wt % Pt and 7.8 wt % MoO_3, relative to the mass of the catalyst.

30. The method of claim **1**, wherein at least some of the fatty acids are unsaturated fatty acids and the catalyst is Pt/Ge on carbon, Pt/Sn on carbon, or a mixture thereof.

31. The method of claim **30**, wherein the catalyst comprises a) 5 wt % Pt and b) 0.5 wt % Ge or 0.5 wt % Sn, relative to a mass of the catalyst.

32. The method of claim **30**, wherein exposing the unsaturated fatty acids to the catalyst results in cyclization and/or aromatization of up to 10% of the fatty acids.

33. The method of claim **30**, wherein exposing the unsaturated fatty acids to the catalyst results in isomerization, cracking, alkylation, cyclization and/or aromatization of greater than 10% of the fatty acids.

34. The method of claim **1**, wherein at least a portion of the hydrocarbons are unsaturated hydrocarbons, and further comprising hydrogenating the unsaturated hydrocarbons to produce saturated hydrocarbons.