Claims

What is claimed is

1. A method of producing *Jatropha curcas* oil, comprising pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and extracting oil from seeds of said F1 hybrid *Jatropha curcas* plant.

2. *Jatropha curcas* oil produced by the method of claim 1.

3. The method of claim 1, further comprising processing said oil for use as a diesel and jet fuel substitute.

4. A diesel and jet fuel substitute produced by the method of claim 3.

5. A method of producing *Jatropha curcas* F1 hybrid seed, comprising pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and harvesting seed from said F1 hybrid *Jatropha curcas* plant.

6. A method of producing *Jatropha curcas* oil, comprising obtaining seeds from a *Jatropha curcas* F1 hybrid plant, wherein the *Jatropha curcas* F1 hybrid plant is produced by pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and extracting oil from said seeds.

7. Use of the *Jatropha curcas* oil produced by the method of claim 6 to produce a diesel or jet fuel substitute.

8. Use of *Jatropha curcas* F1 hybrid seeds produced by the method of claim 6 as a source of oil for use in producing a diesel or jet fuel substitute.

9. A *Jatropha* plant grown from said F1 hybrid seed of claim 5.

10. A part of said plant of claim 9.

11. The plant part of claim 10, which is seed or plant biomass.

12. A method for vegetatively propagating said *Jatropha* plant of claim 9, comprising:

(a) collecting plant tissue capable of being propagated from said *Jatropha* plant; and

(b) cultivating said plant tissue to obtain plantlets.

13. The method of claim 12, wherein said vegetatively propagating is a method for clonal propagation, stem cutting propagation, or tissue culture.

14. A *Jatropha* plant produced by the method of claim 12.

15. A method for producing a progeny *Jatropha* plant derived from said *Jatropha* plant of claim 9, comprising crossing said *Jatropha* plant of claim 9 with a second *Jatropha* plant to produce a progeny *Jatropha* plant.

16. A progeny *Jatropha* plant produced by the method of claim 15.

17. A method, comprising producing a plant-derived product from said *Jatropha* plant of claim 9, or a part thereof.

18. A plant-derived product produced by the method of claim 17.

19. The plant-derived product of claim 18, which is selected from the group consisting of *Jatropha* crude oil, biofuel, diesel, or jet fuel substitute.

CLAIMS

What is claimed is:

1. A method of producing *Jatropha curcas* oil, comprising pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and extracting oil from seeds of said F1 hybrid *Jatropha curcas* plant.

2. *Jatropha curcas* oil produced by the method of claim 1.

3. The method of claim 1, further comprising processing said oil for use as a diesel and jet fuel substitute.

4. A diesel and jet fuel substitute produced by the method of claim 3.

5. A method of producing *Jatropha curcas* F1 hybrid seed, comprising pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and harvesting seed from said F1 hybrid *Jatropha curcas* plant.

6. A method of producing *Jatropha curcas* oil, comprising obtaining seeds from a *Jatropha curcas* F1 hybrid plant, wherein the *Jatropha curcas* F1 hybrid plant is produced by pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and extracting oil from said seeds.

7. Use of the *Jatropha curcas* oil produced by the method of claim 6 to produce a diesel or jet fuel substitute.

8. Use of *Jatropha curcas* F1 hybrid seeds obtained from a *Jatropha curcas* F1 hybrid plant as a source of oil for use in producing a diesel or jet fuel substitute, wherein said *Jatropha curcas* F1 hybrid plant is produced by pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant.

9. A *Jatropha* plant grown from said F1 hybrid seed of claim 5.

10. A part of said plant of claim 9.

11. The plant part of claim 10, which is seed or plant biomass.

12. A method for vegetatively propagating said *Jatropha* plant of claim 9, comprising:
    (a) collecting plant tissue capable of being propagated from said *Jatropha* plant; and
    (b) cultivating said plant tissue to obtain plantlets.

13. The method of claim 12, wherein said vegetatively propagating is a method for clonal propagation, stem cutting propagation, or tissue culture.

14. A *Jatropha* plant produced by the method of claim 12.

15. A method for producing a progeny *Jatropha* plant derived from said *Jatropha* plant of claim 9, comprising crossing said *Jatropha* plant of claim 9 with a second *Jatropha* plant to produce a progeny *Jatropha* plant.

16. A progeny *Jatropha* plant produced by the method of claim 15.

17. A method, comprising producing a plant-derived product from said *Jatropha* plant of claim 9, or a part thereof.

18. A plant-derived product produced by the method of claim 17.

19. The plant-derived product of claim 18, which is selected from the group consisting of *Jatropha* crude oil, biofuel, diesel, or jet fuel substitute.

20. A method of producing *Jatropha curcas* oil, comprising pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), deposited with the American Type Culture Collection as Deposit Number PTA-11583, with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and extracting oil from seeds of said F1 hybrid *Jatropha curcas* plant.

21. *Jatropha curcas* oil produced by the method of claim 20.

22. The method of claim 20, further comprising processing said oil for use as a diesel and jet fuel substitute.

23. A diesel and jet fuel substitute produced by the method of claim 22.

24. A method of producing *Jatropha curcas* F1 hybrid seed, comprising pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), deposited with the American Type Culture Collection as Deposit Number PTA-11583, with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and harvesting seed from said F1 hybrid *Jatropha curcas* plant.

25. A method of producing *Jatropha curcas* oil, comprising obtaining seeds from a *Jatropha curcas* F1 hybrid plant, wherein the *Jatropha curcas* F1 hybrid plant is produced by pollinating flowers of a first, female only (FO) flowering trait *Jatropha curcas* plant (phenotype A), deposited with the American Type Culture Collection as Deposit Number PTA-11583, with pollen from a second, different *Jatropha curcas* plant that does not exhibit a female only (FO) flowering trait (phenotype B), to produce a *Jatropha curcas* F1 hybrid plant, and extracting oil from said seeds.

26. Use of the *Jatropha curcas* oil produced by the method of claim 25 as a diesel or jet fuel substitute.

27. Use of *Jatropha curcas* F1 hybrid seeds produced by the method of claim 25 as a source of a diesel or jet fuel substitute.