CLAIMS

1. A topical pharmaceutical oil-in-water emulsion composition comprising:

   3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof in an amount of about 0.05% to about 2% by weight, based on the total weight of the composition;

   an oil phase comprising medium chain triglycerides of a carbon length from six to twelve carbons in an amount of about 2% to about 30% by weight, based on the total weight of the composition;

   a water phase;

   a surfactant in an amount of about 1% to about 20% by weight, based on the total weight of the composition, wherein the surfactant comprises at least one non-ionic emulsifying wax NF; and

   a dermatologically acceptable excipient selected from the group consisting of an antioxidant, a pH adjusting agent, a chelating agent, a preservative, a co-solvent and combinations thereof;

   wherein the 3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof is solubilized in the oil phase and is the only active ingredient in the oil phase;

   wherein the oil phase is substantially free of petrolatum and mineral oil;

   wherein the oil-in-water emulsion is homogeneous; and

   wherein the average droplet size of the oil phase is from about 0.1 microns to about 35 microns.

2. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the 3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof is in an amount of about 2% by weight, based on the total weight of the composition.

3. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the 3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof is in an amount of about 1% by weight, based on the total weight of the composition.

4. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the 3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof is in an amount of about 0.50% by weight, based on the total weight of the composition.

5. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the medium chain triglyceride carbon length is from C6 to C8.

6. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the medium chain triglycerides are in an amount of about 5% to about 20% by weight, based on the total weight of the composition.

7. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the medium chain triglycerides are in an amount of about 5% to about 15% by weight, based on the total weight of the composition.

8. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the medium chain triglycerides are in an amount of about 10% by weight, based on the total weight of the composition.

9. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the water phase is in an amount of about 30% to about 80% by weight, based on the total weight of the composition.

10. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the water phase is in an amount of about 55% to about 75% by weight, based on the total weight of the composition.

11. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the surfactant is in an amount of about 5% to about 15% by weight, based on the total weight of the composition.

12. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the at least one non-ionic emulsifying wax NF is a mixture of cetostearyl alcohol and a polysorbate.

13. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the surfactant comprises a mixture of the at least one non-ionic emulsifying wax NF and a surfactant selected from the group consisting of ethoxylated fatty alcohol ethers, a sorbitan derivative, and combinations thereof.

14. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the surfactant comprises a mixture of the at least one non-ionic emulsifying wax NF and a surfactant selected from the group consisting of steareth-2, steareth-20, polysorbate 80, and combinations thereof.

15. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the surfactant is a mixture of the at least one non-ionic emulsifying wax NF, steareth-2, steareth-20, and polysorbate 80.

16. The topical pharmaceutical oil-in-water emulsion composition of claim 1 further comprising a second dermatologically acceptable excipient selected from the group consisting of a penetration enhancer, a humectant, a thickening agent, a gelling agent, a viscosity building agent, a fragrance, a colorant, and combinations thereof.

17. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the pH is from about 2 to about 6.

18. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the pH is from about 4 to about 7.

19. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the pH is from about 4.5 to about 6.5.

20. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the average droplet size of the oil phase is about 0.1 microns to less than 15 microns.

21. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the average droplet size of the oil phase is about 0.1 microns to about 5 microns.

22. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the average droplet size of the oil phase is about 0.1 microns to about 0.75 microns.

23. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the average droplet size of the oil phase is about 0.5 microns.

24. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the composition comprises:

3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof in an amount of about 0.5% by weight, based on the total weight of the composition;

an oil phase comprising medium chain triglycerides of a carbon length from six to twelve carbons in an amount of about 10% by weight, based on the total weight of the composition;

a water phase in an amount of about 65.18% by weight, based on the total weight of the composition;

a surfactant, wherein the surfactant is a mixture of about 7.20% of the at least one non-ionic emulsifying wax NF by weight, about 1.80% steareth-2 by weight, about 1.10% steareth-20 by weight, and 1.5% polysorbate 80 by weight, based upon the total weigh of the composition;

an antioxidant in an amount of about 0.10%, based upon the total weight of the composition, wherein the antioxidant is butylated hydroxytoluene;

a pH adjusting agent in an amount of about 0.27% by weight, based upon the total weight of the composition, wherein the pH adjusting agent is a citrate / citric acid buffer;

a chelating agent in an amount of about 0.10% by weight, based upon the total weight of the composition, wherein the chelating agent is disodium ethylene diamine tetraacetic acid;

a preservative in an amount of about 0.25% by weight, based upon the total weight of the composition, wherein the preservative is benzoic acid; and

a co-solvent, wherein the co-solvent is a mixture of about 10% propylene glycol by weight, and about 2% diethylene glycol monoethyl ether by weight, based upon the total weight of the composition;

wherein the 3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof is solubilized in the oil phase and is the only active ingredient in the oil phase;

wherein the oil phase is substantially free of petrolatum and mineral oil;

wherein the emulsion is homogeneous; and

wherein the average droplet size of the oil phase is from about 0.1 microns to about 35 microns.

25. The topical pharmaceutical oil-in-water emulsion composition of claim 1, wherein the composition comprises:

3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof in an amount of about 1.0% by weight, based on the total weight of the composition;

an oil phase comprising medium chain triglycerides of a carbon length from six to twelve carbons in an amount of about 10% by weight, based on the total weight of the composition;

a water phase in an amount of about 64.68% by weight, based on the total weight of the composition;

a surfactant, wherein the surfactant is a mixture of about 7.20% of the at least one non-ionic emulsifying wax NF by weight, about 1.80% steareth-2 by weight, about 1.10% steareth-20 by weight, and 1.5% polysorbate 80 by weight, based upon the total weight of the composition;

an antioxidant in an amount of about 0.10%, based upon the total weight of the composition, wherein the antioxidant is butylated hydroxytoluene;

a pH adjusting agent in an amount of about 0.27% by weight, based upon the total weight of the composition, wherein the pH adjusting agent is a citrate / citric acid buffer;

a chelating agent in an amount of about 0.10% by weight, based upon the total weight of the composition, wherein the chelating agent is disodium ethylene diamine tetraacetic acid;

a preservative in an amount of about 0.25% by weight, based upon the total weight of the composition, wherein the preservative is benzoic acid; and

a co-solvent, wherein the co-solvent is a mixture of about 10% propylene glycol by weight, and about 2% diethylene glycol monoethyl ether by weight, based upon the total weight of the composition;

wherein the 3,5-dihydroxy-4-isopropyl-trans-stilbene or a pharmaceutically acceptable salt thereof is solubilized in the oil phase and is the only active ingredient in the oil phase;

wherein the oil phase is substantially free of petrolatum and mineral oil;

wherein the emulsion is homogeneous; and

wherein the average droplet size of the oil phase is from about 0.1 microns to about 35 microns.

26. The topical pharmaceutical oil-in-water emulsion composition of claim 25, wherein the average droplet size of the oil phase is about 0.1 microns to about 5 microns.

27. The topical pharmaceutical oil-in-water emulsion composition of claim 25, wherein the average droplet size of the oil phase is about 0.1 microns to about 0.75 microns.