CLAIMS

1. A composition comprising: phytoene in the amount of 55-65% (w/w) of the total carotenoids in said composition, phytofluene in the amount of 10-20% (w/w) of the total carotenoids in said composition, zeta carotene in the amount of 15-25% (w/w) of the total carotenoids in said composition, and an acceptable carrier, and wherein said composition synergistically inhibits myeloperoxidase (MPO) activity with reduced toxicity to fibroblasts compared to a tomato extract control.

2. The composition of claim 1, wherein the weight ratio of said phytoene and said phytofluene combined to said zeta carotene ranges from 15:1 (w/w) to 2:1 (w/w).

3. The composition of claims 1 or 2, further comprising an additional carotenoid selected from the group consisting of: lycopene, beta carotene, gamma carotene, and any combination thereof.

4. The composition of claim 3, comprising said lycopene in the amount of less than 5% (w/w) of the total carotenoids in said composition, said beta carotene in the amount of less than 5% (w/w) of the total carotenoids in said composition, said gamma carotene in the amount of 0.2-1.5% (w/w) of the total carotenoids in said composition, or a combination thereof.

5. The composition of any one of claims 1 to 4, comprising total carotenoids amount of 10-15% (w/w) of said composition.

6. The composition of any one of claims 1 to 5, further comprising a tocopherol.

7. The composition of claim 6, comprising said tocopherol in the amount of 10-30% (w/w) total carotenoids of said composition.

8. The composition of any one of claims 1 to 7, further comprising a phytosterol.

9. The composition of claim 8, comprising said phytosterol in the amount of 5-15% (w/w) total carotenoids of said composition.

10. The composition of any one of claims 1 to 9, for use in prevention or treatment of a collagen-loss related disease in a subject in need thereof.

11. The composition for use according to claim 10, wherein said prevention or treatment is reducing collagen loss by 50-90% in said subject.

12. The composition for use according to claim 10 or 11, wherein said prevention or treatment comprises reducing the amount, the activity, or both, of any one of: a matrix metalloprotease (MMP), myeloperoxidase (MPO), superoxide (SO), elastase, nitric oxide (NO), and any combination thereof, in said subject.

13. The composition for use according to claim 12, wherein said MMP is selected from: MMP-9, MMP-8, MMP-1, or any combination thereof.

14. The composition for use according to any one of claims 10 to 13, wherein said collagen-loss related disease is selected from the group consisting of: an age-related disease, a skin disease, and an inflammatory disease.

15. The composition for use according to claim 14, wherein said skin disease comprises skin damage induced by any one of: radiation, oxidative stress, DNA damage, telomere shortening, inflammation, tobacco usage, and any combination thereof.

16. The composition for use according to claim 15, wherein said radiation comprises UV radiation, visible light radiation, infrared radiation, or any combination thereof.

17. The composition for use according to claim 16, wherein said UV radiation is UVA, UVB, UVC, or any combination thereof.

18. The composition for use according to any one of claims 10 to 17, wherein said subject has increased amount, increased activity, or both, of any one of: MMP, MPO, SO, elastase, NO, and any combination thereof, in the skin, systemically, or both, compared to control.

19. The composition for use according to any one of claims 10 to 18, being administered by oral administration, topical administration, or both.

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