

WHAT IS CLAIMED IS:

1. A method of making a denatured whey protein composition, the method comprising:
 - filtering cheese whey from enzymatically coagulated milk into a cheese whey retentate and a permeate; and
 - reducing native glycomacropeptides (GMP) in the cheese whey retentate to form a reduced-GMP cheese whey retentate composition; and
 - heating the reduced-GMP cheese whey retentate composition to form the denatured whey protein composition,wherein the denatured whey protein composition is characterized by
 - at least 60 wt.% whey protein on a dry weight basis;
 - less than 11 wt.% native GMP relative to a total weight of protein in the denatured whey protein composition;
 - greater than 9 wt.% fat on a dry basis;
 - a beta-lactoglobulin to alpha lactalbumin weight ratio of greater than 5.00; and
 - greater than 50 wt.% denatured whey proteins relative to the total weight of the protein in the denatured whey protein composition.
2. The method of claim 1, wherein the reduction of native GMP in the cheese whey retentate occurs through microfiltration of the cheese whey retentate.
3. The method of claim 2, wherein the microfiltration comprises a microfiltration membrane having a pore size of 0.4 micrometers or less.
4. The method of claim 1, wherein the reduced-GMP cheese whey retentate composition is heated to a temperature of greater than or about 160°F.
5. The method of claim 1, wherein the heating of the reduced-GMP cheese whey retentate composition further comprises exposing the reduced-GMP cheese whey retentate composition to high shear conditions.
6. The method of claim 1, wherein cheese whey from enzymatically coagulated milk prior to denaturation already includes at least 5 wt.% denatured protein, and/or wherein the cheese whey from enzymatically coagulated milk has a fat content of about 16 wt.% or greater based upon a dry basis weight.

7. A denatured whey protein composition comprising:
at least 60 wt.% protein on a dry weight basis, and wherein the denatured whey protein composition comprises alpha lactalbumin;
less than 11 wt.% native glycomacropeptide (GMP) relative to total weight of the protein;
greater than 9 wt.% fat on a dry basis;
a beta-lactoglobulin to alpha lactalbumin weight ratio of greater than 5.00; and
greater than 50 wt.% denatured whey proteins relative to the total weight of the protein.
8. The method of claim 7, wherein the denatured whey protein composition comprises greater than 11 wt.% fat.
9. The denatured whey protein composition of claim 7, wherein the denatured whey protein composition contains at least 60 wt.% beta lactoglobulin relative to a total weight of protein and/or wherein the denatured whey protein composition contains at most 12 wt.% alpha lactalbumin relative to the total weight of protein.
10. The denatured whey protein composition of claim 7, wherein the denatured whey protein composition comprises a weight ratio of beta lactoglobulin to alpha lactalbumin of greater than or about 5.5.
11. The denatured whey protein composition of claim 7, wherein the denatured whey proteins are characterized by a D50 particle size distribution value of less than or about 0.3 μm .
12. The denatured whey protein composition of claim 7, wherein the denatured whey proteins are further characterized by a D10 particle size distribution value of less than or about 0.1 μm .
13. The denatured whey protein composition of claim 7, wherein the denatured whey proteins are further characterized by a D90 particle size distribution value of less than or about 1.0 μm .
14. The denatured whey protein composition of claim 7, wherein the denatured whey protein composition is a powder.

15. The denatured whey protein composition of claim 7, wherein the alpha lactalbumin is present in an amount from 7.5 wt.% to 15 wt.%.

16. The denatured whey protein composition of claim 7, further comprising greater than 77.5 wt.% denatured whey proteins relative to the total weight of the protein.