

CLAIMS

1. A plant-based cheese product comprising a plant prolamin combined with a fat, and a structural component in water, to yield a cheese product comprising a prolamin non-covalent network.
2. The plant-based cheese product of claim 1, wherein the product is stretchable in an amount of about 100% in a linear direction from a resting or baseline position without breaking at 50° C.
3. The plant-based cheese product of claim 1, wherein the product exhibits:
 - i) a melting profile in which the $\tan \delta$ increases from about 0.2 - 0.5 to about 2.0 as temperature is increased from room temperature up to about 100°C; or
 - ii) a melting profile such that the storage modulus (G') is greater than loss modulus (G''), and $\tan \delta$ (G''/G') is greater than 0.5 but less than 1.0.
4. The plant-based cheese product of claim 1, wherein the product exhibits a decrease in hardness and loss of shape at a temperature of greater than 20° C as compared to the hardness of the product at 5°C.
5. The plant-based cheese product of claim 1, wherein the prolamin is selected from the group consisting of gliadin, hordein, secalin, zein, kafirin, avenin, or combinations thereof.
6. The plant-based cheese product of claim 1, wherein the prolamin comprises zein or a functionally equivalent derivative thereof.
7. The plant-based cheese product of claim 1, comprising about 10-30% by weight prolamin, 0.1-25% by weight fat and 1-30% by weight structural component.
8. The plant-based cheese product of claim 1, wherein the fat is selected from the group consisting of sunflower oil, canola oil, safflower oil, soybean oil, avocado oil, olive oil, corn oil, flaxseed oil, almond oil, coconut oil, peanut oil, pecan oil, cottonseed oil, algal oil, palm oil, palm stearin, palm olein, palm kernel oil, rice bran oil, sesame oil, butteroil, cocoa butter, shea butter, shea stearin, shea olein, palm kernel stearin, palm kernel olein, grape seed oil, hazelnut oil, brazil nut oil, linseed oil, acai palm oil, passion fruit oil and mixtures thereof.
9. The plant-based cheese product of claim 1, wherein the fat comprises an oleic acid content of greater than 20% by weight.
10. The plant-based cheese product of claim 1, wherein the structural component comprises a thickening agent and/or a gelling agent.

11. The plant-based cheese product of claim 1, wherein the structural component is selected from the group consisting of a starch, a microbial or vegetable gum, a protein, a sugar polymer, and mixtures thereof.
12. The plant-based cheese product of claim 11, wherein the structural component is selected from the group consisting of arrowroot, cornstarch, katakuri starch, potato starch, sago, wheat flour, almond flour, tapioca, starch derivatives, modified or pre-gelatinized starches, alginin, guar gum, locust bean gum, gellan gum, tara gum, Arabic gum, Konjac gum, xanthan gum, collagen, egg white, gelatin, agar, carboxymethyl cellulose, pectin, carrageenan, and mixtures thereof.
13. The plant-based cheese product of claim 1, additionally comprising a plasticizer.
14. The plant-based cheese product of claim 13, wherein the plasticizer is a food grade acid, glycerol, a sugar or mixtures thereof.
15. The plant-based cheese product of claim 13, wherein the plasticizer is a food grade carboxylic acid.
16. The plant-based cheese product of claim 15, wherein the plasticizer is selected from citric acid, malic acid, tartaric acid, lactic acid, acetic acid, oxalic acid and mixtures thereof.
17. The plant-based cheese product of claim 1, comprising a plasticizer in an amount of up to 5% by weight.
18. The plant-based cheese product of claim 1, wherein the prolamin is partially hydrolyzed.
19. A method of making a plant-based cheese product as defined in any one of claims 1-17, comprising the steps of:
 - i) combining the structural component with water and heating to form a mixture having a viscosity that permits formation of a non-covalent prolamin network at a temperature greater than the glass transition temperature of the prolamin, and
 - ii) combining the mixture with the prolamin, fat and optionally a plasticizer at a temperature above the glass transition temperature of the prolamin to form the prolamin network; and
 - iii) cooling the mixture to provide the cheese product.
20. The method of claim 19, wherein the prolamin has a glass transition temperature of greater than 40 °C.
21. The method of claim 20, wherein the prolamin is zein.
22. A product comprising a prolamin combined with a plasticizer.