C l a i m s

1. Process for producing a non-dairy food product of enhanced viscosity, comprising providing a mixture of deamidated oat base and vegetable protein isolate comprising or consisting of vegetable protein isolate selected from pea protein isolate, potato protein isolate, faba bean protein isolate, chickpea protein isolate, and lentil protein isolate; crosslinking of glutamine and lysine units of the protein isolate by means of transglutaminase.

2. The process of claim 1, wherein the mixture is heated to a temperature of 80° or more prior to the addition of transglutaminase.

3. The process of claim 1, wherein the added vegetable protein isolate consists of or comprises denaturated vegetable protein.

4. The process of claim 3, wherein the vegetable protein isolate consists of pea protein isolate.

5. The process of claim 1, comprising, prior to cross-linking with transglutaminase, adjusting and/or holding the mixture at a pH substantially higher than that of the isoelectric point of the vegetable protein isolate, such as higher by 1.0 pH units, in particular higher by 1.5 pH units or 2.0 pH units or more.

6. A process for producing oat base or oat drink of enhanced viscosity, comprising:
a) Providing an oat base or drink optionally comprising a viscosity promoting agent;
b) Providing native vegetable protein isolate and/or denaturated vegetable protein isolate, comprising or consisting of vegetable protein isolate selected from pea protein isolate, potato protein isolate, faba bean protein isolate, chickpea protein isolate, and lentil protein isolate;
c) Mixing the oat base or drink and vegetable protein isolate;

d) Heating the mixture of oat base and vegetable protein isolate to a temperature of 80 °C or higher and keeping it at this temperature for from 5 min to 60 min, in particular from 10 min to 30 min, thereby forming a mixture of oat base or drink and heat-treated vegetable protein isolate;

e) Bringing the mixture of oat base or drink and heat-treated vegetable protein isolate to a temperature of from 35 °C to 65 °C;

f) Adding a protein cross-linking amount of transglutaminase to the mixture of oat base or drink and heat-treated vegetable protein isolate while keeping the mixture at said temperature of from 35 °C to 65 °C for a time required to increase viscosity by a factor of 2 or more, in particular of 5 or more to form a viscosity enhanced oat base or drink;

g) Inactivating transglutaminase by heating the viscosity enhanced oat base or drink to a temperature of 80 °C or more, in particular of 90 °C or more;

h) Cooling the viscosity enhanced oat base or drink to one of: room temperature or below if desired to be stored for a longer time or to a temperature suitable for further processing;

with the proviso that protease activity is excluded from the process.

7. The process of claim 6, wherein the oat base or drink is a deamidated oat base or drink.

8. The process of claim 6 or 7, wherein the vegetable protein isolate is or comprises pea protein isolate.

9. The process of claim 6 or 7, wherein the pea protein isolate is or comprises denaturated pea protein isolate.

10. The process of claim 6, wherein the vegetable protein isolate is added in an amount so as to raise the total protein content of the oat base to 2 % by weight or more, in particular to 3 % by weight or more, most preferred to 4 % or 5 % by weight or more.

11. The process of claim 6, wherein the viscosity enhanced oat base or drink has a dry matter content of from 8 to 15 % by weight, more preferred of from 9 to 12 % by weight, most preferred of about 10 % or 11 % by weight.

12. The process of claim 11, wherein the viscosity enhanced oat base or drink dry matter comprises from 10 % to 50 % by weight of maltose or of a mixture of maltose and glucose, from 30 % to 80 % by weight of maltodextrin.

13. The process of claim 6, wherein the temperature for heating in d) is from 80 °C to 95 °C.

14. The process of claim 6, wherein the viscosity promoting agent is calcium carbonate.

15. The process of claim 6, comprising, prior to and/or during cross-linking with transglutaminase, adjusting and/or holding the mixture at a pH substantially higher than that of the isoelectric point of the vegetable protein isolate, such as higher by 1.0 pH units, in particular higher by 1.5 pH units or 2.0 pH units or more.

16. Oat base or drink of enhanced viscosity obtainable by a process according to any of claims 6 – 15.

17. Use of an oat base or drink of enhanced viscosity obtained or obtainable by the process of any of claims 6 – 15 as a food, a food additive or a starting material for production of a food, all intended for human consumption.

18. The use of claim 17, for the production of a fermented food product such as yogurt, sour cream or fresh cheese.

19. Process for fermentation of the oat base or drink of enhanced viscosity of claim 16, comprising:

a) Bringing the oat base or drink to a fermentation temperature of from about 35 °C to about 50 °C, in particular of about 43 °C;
b) Adding a fermentation starter culture, in particular a yogurt or cheese starter culture, to the oat base or drink of enhanced viscosity;
c) Maintaining the oat base or drink of enhanced viscosity at the fermentation temperature for a time period sufficient to form a fermented product, in particular a non-dairy yogurt-like or curd-like product, such as for a time period of from 8 h to 24 h, in particular of from 12 h to 15 or 18 h.

20. Fermented food product obtainable by the process of claim 19, in particular in form of vegetable yogurt, sour cream or fresh cheese, of a viscosity of 2000 Pa·s or more, in particular of 5000 Pa·s or more.

21. Fermented food product obtainable by the process of claim 19, in particular in form of vegetable curd, of a viscosity of more than 5000 Pa·s, in particular of more than 10000 Pa·s or more or 20000 Pa·s or more.

22. The fermented food product obtainable by the process of claim 19, of an elastic modulus of 100 Pa to 500 Pa or to 1000 Pa.

23. Process for producing a non-dairy fermented food product of enhanced viscosity from deamidated oat base or drink, comprising:
a) Providing deamidated oat base or drink optionally comprising a viscosity promoting agent;
b) Providing vegetable protein isolate or denaturated vegetable protein isolate, comprising or consisting of vegetable protein isolate selected from pea protein isolate, potato protein isolate, faba bean protein isolate, chickpea protein isolate, and lentil protein isolate;
c) Mixing the deamidated oat base or drink and the protein isolate;

d) Heating the mixture of step c) to a temperature of 80 °C or more, in particular of 90 °C or more, most preferred of about 95 °C, for from 5 min to 60 min, in particular from 10 min to 30 min;

e) Cooling the mixture;

f) Adding transglutaminase and yogurt or cheese starter culture to the mixture;

g) Keeping the mixture at a fermentation temperature, such as at a temperature of from 35 °C to 50 °C, in particular of about 43 °C, for a time period sufficient for forming a fermented product, in particular a yogurt-like or cheese-like product, such as for a time period of from 8 h to 24 h, in particular of from 12 h to 15 or 18 h;

h) Optionally destroying enzymatic activity by heating the fermented product;

i) Cooling the fermented product to room temperature or below.

24. The process of claim 23, wherein the vegetable protein isolate comprises or consists of pea protein isolate, potato protein isolate, faba bean protein isolate, chickpea protein isolate, lentil protein isolate, in particular consists of pea protein isolate; and wherein the vegetable protein isolate optionally comprises or consists of denaturated vegetable protein isolate.

25. The process of claim 23, wherein the vegetable protein isolate is added in an amount so as to raise the total protein content of the oat base or drink to 2 % by weight or more, in particular to 3 % by weight or more, most preferred to 4 % by weight or more.

26. The process of claim 23, comprising, prior to and/or during incubation with transglutaminase and yogurt or cheese starter culture, adjusting and/or holding the mixture at a pH substantially higher than that of the isoelectric point of the vegetable protein isolate, such as higher by 1.0 pH units, in particular higher by 1.5 pH units or 2.0 pH units or more.

27. The process of claim 23, wherein the viscosity promoting agent is calcium carbonate.

28. The process of claim 23, wherein the fermented food product is non-dairy yogurt, non-dairy sour cream or non-dairy fresh cheese.

29. Fermented food product obtainable by the process of any of claims 23-28, of a viscosity of 2000 Pa·s or more, in particular of 5000 Pa·s or more, most preferred of 10000 Pa·s or more.

30. The fermented food product of claim 29, of an elastic modulus of 100 Pa to 500 Pa or to 1000 Pa.

31. The fermented food product of claim 29 in form of non-dairy yogurt, non-dairy sour cream or non-diary fresh cheese or curd.