

Edible Fungi

5 This invention relates to edible fungi and particularly, although not exclusively, relates to edible formulations comprising edible fungal particles for use as meat substitutes.

10 It is known, for example from WO 00/15045 (DSM), WO96/21362 (Zeneca) and WO95/23843 (Zeneca) to use edible filamentous fungi as meat-substitutes, for example in the preparation of burgers and sausages. In such uses, filaments of the fungi are bound together, for example with egg albumin, and are texturised so that the product resembles muscle fibres and therefore has a meat-like appearance and texture. Meat substitutes of the type described have been widely commercially available for many years under the trade mark QUORN.

15 In some circumstances, it is desirable to reduce or even eliminate the amount of egg albumin used with edible fungus in the manufacture of meat-substitutes for example on cost grounds or to produce a product suitable for vegans.

20 It is an object of the present invention to address the aforementioned problem.

According to a first aspect of the invention, there is provided an edible formulation comprising edible fungal particles of a filamentous fungus and calcium ions, wherein said edible formulation includes 0 wt% of components derived from animals; and wherein said edible formulation includes at least 2,000mg of calcium ions per Kg of filamentous fungus on a dry matter basis.

25 One class of people may find it acceptable, generally, to avoid all animal products except dairy products. Thus, such a class of people may find an edible formulation which incorporates whey protein (e.g. up to about 10 wt% whey protein) as acceptable. Thus, in one embodiment, said edible formulation includes no animal products except, optionally, dairy products. However, in a second embodiment, said edible formulation is suitable for vegans. Consequently, in this embodiment, said edible formulation preferably includes 0 wt% of components derived from animals.

35 Thus, it follows from the aforementioned that said formulation preferably includes 0 wt% of a hydrocolloid derived from an animal source. Said formulation preferably includes 0 wt% of egg albumin.

Claims

1. An edible formulation comprising edible fungal particles of a filamentous fungus and calcium ions, wherein said edible formulation includes 0 wt% of components
5 derived from animals; and wherein said edible formulation includes at least 2,000mg of calcium ions per Kg of filamentous fungus on a dry matter basis.
2. A formulation according to claim 1, wherein said fungal particles comprise cells
10 of fusarium species.
3. A formulation according to claim 1 or claim 2, wherein said edible formulation includes at least 5 wt%, preferably at least 20 wt%, of said filamentous fungus on a dry matter basis.
- 15 4. A formulation according to any preceding claim, wherein said edible formulation includes at least 8,000mg of calcium ions per Kg of filamentous fungus on a dry matter.
- 5, 20 5. A formulation according to any preceding claim, wherein said edible formulation includes at least 2,000mg, preferably at least 8,000mg, per Kg of filamentous fungus on a dry matter basis, of extracellular calcium ions.
6. A formulation according to any preceding claim, wherein the total amount of calcium ions in said edible formulation is at least 5,000mg per Kg; and may be less
25 than 40,000mg per Kg of filamentous fungus.
7. A formulation according to any preceding claim, wherein said edible formulation includes at least 0.100 wt% and less than 1 wt% of calcium ions in total, on a dry weight basis.
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8. A formulation according to any preceding claim, wherein said edible formulation includes at least 50 wt% of water.
9. A formulation according to any preceding claim, wherein said edible formulation
35 includes a polysaccharide, for example a sulphonated polysaccharide.

10. A formulation according to any preceding claim, wherein said edible formulation includes an alginate.
11. A formulation according to any preceding claim, wherein said edible formulation
5 includes gluten.
12. A formulation according to any preceding claim, wherein said edible formulation includes a protein source (A) in addition to said edible fungal particles.
- 10 13. A formulation according to claim 12, wherein said protein source (A) is a source of vegetable protein but is not a wheat-based protein.
14. A formulation according to claim 12 or claim 13, wherein said edible formulation, on a dry weight basis, includes at least 1 wt%, preferably at least 5 wt%,
15 of protein source (A); and it may include less than 20 wt% of protein source (A).
15. A formulation according to any preceding claim, wherein said edible formulation includes acetate moieties.
- 20 16. A formulation according to any preceding claim, wherein in said edible formulation, the ratio of the wt% of acetate ions divided by the wt% of filamentous fungus on a dry matter basis is at least 0.005 and may be less than 0.04.
17. A formulation according to any preceding claim, wherein said edible formulation
25 includes at least 0.10 wt% and may include less than 2.00 wt% of acetate ions on a dry matter basis.
18. A formulation according to any preceding claim, wherein said edible formulation includes:
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- at least 5,000mg of calcium ions per Kg of filamentous fungus on a dry matter basis;
 - less than 25,000mg of calcium ions per Kg of filamentous fungus on a dry matter basis;
 - 35 - at least 50 wt% of water;
 - 0 wt% of egg albumin.

19. A formulation according to any preceding claim, wherein in said edible formulation, the ratio of the wt% of acetate ions divided by the wt% of filamentous fungus on a dry matter basis is at least 0.005.

5 20. A formulation according to any preceding claim, wherein said edible formulation includes at least 0.10 wt% and suitably includes less than 1.5 wt% of acetate ions, on a dry matter basis.

10 21. A formulation according to any preceding claim, wherein said fungal particles have a RNA content on a dry weight basis of less than 1.9 wt%.

22. A formulation according to any preceding claim, wherein in said edible formulation, the ratio of the wt% of filamentous fungus (on a dry matter basis) divided by the wt% of water is at least 0.05 and said ratio may be less than 0.5.

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23. A formulation according to any preceding claim, wherein said edible formulation is provided in a package.

20 24. A formulation according to claim 23, wherein said package includes at least 50g of said edible formulation.

25. A method of making an edible formulation, as described in any preceding claim, the method comprising:

- 25 (i) selecting a formulation comprising edible fungal particles of a filamentous fungus;
- (ii) contacting said formulation with calcium ions.

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