CLAIMS

1. A method for the production of a composition comprising an edible fungal mycelium biomass, characterized in that said composition has a stable and homogenous colour, the method comprising the steps of:

(a) providing a growth medium;

(b) providing at least one edible fungal strain that produces mycelium;

(c) cultivating the at least one edible fungal strain in the growth medium until deceleration phase is reached;

(d) supplementing the growth medium with at least one colourant, wherein the supplementing is done in the deceleration phase;

(e) further cultivating the at least one fungal strain in the growth medium supplemented with the at least one colourant; and

(f) harvesting from the growth medium the composition comprising the edible fungal mycelium biomass, characterized in that said composition has the stable and homogenous colour

due to the at least one colourant supplemented in step (d),

wherein supplementing the at least one colourant in the deceleration phase results in a more stable and homogenous colouration of the composition relative to supplementing the at least one colourant at a time point other than the deceleration phase.

2. The method of claim 1, wherein the at least one fungal strain is selected from the group consisting of Peziomycetes, Agaricomycetes, and Sordariomycetes.

3. The method of claim 1, wherein the at least one fungal strain is selected from the group consisting of Pezizales, Boletales, Cantharellales, Agaricales, Polyporales, Russulales, Auriculariales, Sordoriales, and Hypocreales.

4. The method of claim 1, wherein the at least one fungal strain is selected from the group consisting of Morchellaceae, Tuberaceae, Pleurotaceae, Agaricaceae, Marasmiaceae, Cantharellaceae, Hydnaceae, Boletaceae, Meripilaceae, Polyporaceae, Strophariaceae, Lyophyllaceae, Tricholomataceae, Omphalotaceae, Physalacriaceae, Schizophyllaceae, Sclerodermataceae, Ganodermataceae, Sparassidaceae, Hericiaceae, Bondarzewiaceae, Cordycipitaceae, Auriculariaceae, Sordoriaceae, Nectriaceae and Fistulinaceae.

5. The method of claim 1, wherein the at least one fungal strain is selected from the group consisting of *Pleurotus pulmonarius, Pleurotus florida, Pleurotus citrinopileatus, Pleurotus salmoneostramineus, Morchella esculenta, Morchella angusticeps, Morchella deliciosa*, and *Morchella rufobrunnea.*

6. The method of claim 1, wherein the at least one fungal strain is *P. pulmonarius* or *Morchella rufobrunnea.*

7. The method of claim 1, wherein the growth medium further comprises vitamin B12 and/or omega-3 fatty acid(s).

8. The method of claim 1, wherein the at least one colourant comprises a powder, wherein optionally said powder forms dispersed phase when being supplemented to the growth medium in step (d).

9. The method of claim 8, wherein the powder is a cocoa powder, a duckweed powder, a spirulina powder, a paprika powder, a turmeric powder, a heme powder or a beet powder, or a combination thereof.

10. The method of claim 8, wherein a homogeneous colouration of the composition is achieved upon supplementing the powder to the growth medium in step (d).

11. The method of claim 1, wherein the at least one colourant is assimilated by the at least one fungal strain.

12. The method of claim 11, wherein the assimilation of the colourant by the at least one fungal strain is dependent on the oxygen availability to the at least one fungal strain.

13. The method of claim 11, wherein step (e) is performed for not more than 72 hours, optionally not more than 48 hours.

14. The method of claim 11, wherein the colourant is a terpene compound, optionally a carotenoid.

15. The method of claim 11, wherein the colourant is selected from the group consisting of xantophyll, carotene and chlorophyll.

16. The method of claim 14, wherein the colourant is astaxanthin or a derivative thereof.

17. The method of claim 1, wherein the colourant is selected from the group consisting of carotenoids, melanins, flavins, phenazines, quinones, monascins, violacein, indigo, anthraquinones, naphthaquinones, dihydroxy naphthalene melanin, flavin, monascorubamin, lycopene, ankaflavin, chrysophanol, cynodontin, helminthosporin, tritisporin, erythroglaucin, riboflavin, rubropunctatin; and pigments sourced from microbes such as, *Monascus* sp., *Xanthophyllomyces dendrorhous, Penicillium oxalicum, Ashbya gossypii, Blakeslea trispora, Erwinia uredovora, Rhodotorula mucilaginosa*, and *Fusarium sporotrichioides.*

18. The method of claim 1, wherein the at least one colourant is provided by a coloured microorganism added to the growth medium in the deceleration phase.

19. The method of claim 18, wherein the coloured microorganism comprises a fungus, optionally *Rhodotorula* fungus.

20. The method of claim 18, wherein the coloured microorganism is a microorganism selected from the group consisting of red algae, green algae, brown algae, and cyanobacteria.

21. The method of claim 18, wherein the coloured microorganism is a CO_2-fixing microbe, optionally wherein the CO_2-fixing microbe uses CO_2 produced by cultivating the at least one fungal strain in step c) or e) for its growth.

22. The method of claim 1, wherein the at least one colourant comprises a lignocellulosic liquid extract.

23. The method of claim 22, wherein the lignocellulosic liquid extract is selected from the group consisting of extracts of spent grain, cereal brans, wheat brans, cocoa, and coffee.

24. The method of claim 22, wherein the lignocellulosic liquid extract is extract of wheat brans and/or spent grain.

25. The method of claim 1, further comprising a step of recovering a supernatant in step (f).

26. A composition comprising an edible fungal mycelium biomass, wherein the composition is obtained according to a method comprising the steps of:

(a) providing a growth medium;

(b) providing at least one edible fungal strain that produces a mycelium;

(c) cultivating the at least one edible fungal strain in the growth medium until deceleration phase is reached;

(d) supplementing the growth medium with at least one colourant, wherein the supplementing is done in the deceleration phase;

(e) further cultivating the at least one fungal strain in the growth medium supplemented with the at least one colourant; and

(f) harvesting from the growth medium the composition comprising the edible fungal mycelium biomass, characterized in that said composition has a stable and homogenous colour due to the at least one colourant supplemented in step (d),

wherein supplementing the at least one colourant in the deceleration phase results in a more stable and homogenous colouration of the composition relative to supplementing the at least one colourant at a time point other than the deceleration phase; and

optionally wherein the composition comprises:

at least 15 mg or 30 mg of the at least one colourant per 100 g of the fungal mycelium biomass, and/or

at least 0.01-5 wt. %, 0.1-5 wt. %, 0.1-2.5 wt. %, 0.1-1 wt. %, or 0.1-0.5 wt. % of the at least one colourant.

27. A food product comprising the composition of claim 26, optionally wherein the food product comprises an additive selected from preservatives, antioxidants and acidity regulators, thickeners, stabilisers and emulsifiers, pH regulators and anti-caking agents, flavor enhancers, improving agents, stabilizers, thickening agents, colours, and/or glazing agents and sweeteners, or

wherein the food product is a beverage, optionally a Kombucha, or

wherein the food product is an edible meat substitute product, an edible dairy substitute product or an edible fish analogue or seafood product.

28. A supernatant, obtained according to a method comprising the steps of:

(a) providing a growth medium;

(b) providing at least one edible fungal strain that produces a mycelium;

(c) cultivating the at least one edible fungal strain in the growth medium until deceleration phase is reached;

(d) supplementing the growth medium with at least one colourant, wherein the supplementing is done in the deceleration phase;

(e) further cultivating the at least one fungal strain in the growth medium supplemented with the at least one colourant; and

(f) harvesting from the growth medium the composition comprising the edible fungal mycelium biomass, characterized in that said composition has a stable and homogenous colour due to the at least one colourant supplemented in step (d); and

(g) recovering the supernatant from the composition harvested in step (f),

wherein supplementing the at least one colourant in the deceleration phase results in a more stable and homogenous colouration of the composition relative to supplementing the at least one colourant at a time point other than the deceleration phase, and

optionally wherein the supernatant comprises at least 0.1 wt. % of filamentous fungi.

29. The method of claim 1, wherein the cultivating step (c) is performed in a batch or fed-batch fermentation.