Claims

Claim 1. A process for producing a fermentation product, wherein the process comprises the steps of:

a) growing a strain of a thermophilic fungus in submerged culture in a chemically defined medium comprising a carbon source and a nitrogen source, wherein the carbon source consists of at least one of a hydrophilic carbon source and a defoaming agent, and the nitrogen source consists of at least one of urea, ammonia, nitrate and ammonium salts, at a pH of less than 5.0, whereby the strain converts at least one of the carbon and nitrogen sources in the medium to the fermentation product and wherein the strain is cultured in the presence of a defoaming agent, preferably a food-grade defoaming agent; and,

b) optionally, recovery of the fermentation product produced in step a).

Claim 2. A process according to claim 1, wherein the defoaming agent is at least one of an oil-based defoamer, a polyalkylene glycol-based defoamer and a silicon-based defoamer.

Claim 3. A process according to claim 1 or 2, wherein the defoaming agent comprises a vegetable oil, preferably an edible vegetable oil, wherein more preferably, the vegetable oil is selected from the group consisting of canola (rapeseed) oil, coconut oil, corn oil, cottonseed oil, olive oil, palm oil, palm kernel oil, linseed oil, peanut oil, safflower oil, soya bean oil, sunflower oil and high-oleic sunflower oil, of which olive oil or high-oleic sunflower oil are preferred.

Claim 4. A process according to any one of the preceding claims, wherein the defoaming agent is present and maintained in the chemically defined medium at a concentration of at least 25 ppm (w/v), wherein preferably the defoaming agent is fed continuously or intermittently to the chemically defined medium.

Claim 5. A process according to any one of the preceding claims, wherein the fungal strain is a strain of a fungal genus selected from the group consisting of *Rasamsonia, Talaromyces, Penicillium, Acremonium, Humicola, Paecilomyces, Chaetomium, Rhizomucor, Rhizopus, Thermomyces, Myceliophthora, Thermoascus, Thielavia, Mucor, Stibella, Melanocarpus, Malbranchea, Dactylomyces, Canariomyces, Scytalidium, Myriococcum, Corynascus,* and *Coonemeria*, of which the genus *Rhizomucor* is preferred.

Claim 6. A process according to claim 5, wherein the fungal strain is of the species *Rhizomucor pusillus*, preferably the strain is *Rhizomucor pusillus* strain CBS 143028, or a strain that is a single colony isolate and/or a derivative of strain CBS 143028.

Claim 7. A process according to any one of the preceding claims, wherein the hydrophilic carbon source consists of carbohydrate or an organic acid, and wherein preferably the defoaming agent is a vegetable oil.

Claim 8. A process according to any one of the preceding claims, wherein no vitamins are added to the medium.

Claim 9. A process according to any one of the preceding claims, wherein step a) of the process, is carried out as is a fed-batch process, a repeated fed-batch process or a continuous process, preferably a carbon-limited process.

Claim 10. A process according to any one of the preceding claims, wherein the fermentation product is single cell protein in the form of biomass of thermophilic fungus, wherein the process optionally comprises a step b) of recovery of SCP from the medium in the form of biomass of the thermophilic fungus grown in step a).

Claim 11. A process according to claim 10, wherein the biomass is recovered from the medium by at least one of sieving, filtration and decantation, whereby preferably the dry matter concentration of the sieved, filtered or decanted biomass is at least 12% (w/v), and wherein more preferably, the biomass is further dried by pressing residual water out.

Claim 12. A process according to claim 11, wherein the biomass is milled and further dried to a biomass powder by warm air, by freeze drying, preferably under vacuum, or by flash drying, preferably to a water content of no more than 5 % (w/w).

Claim 13. An SCP product comprising biomass of a thermophilic fungal strain as defined in claim 5 or 6, wherein at least one of:

a) the biomass is obtainable in process according to any one of claim 1 – 12; and,

b) the biomass comprises at least 1 ppm of a defoaming agent as defined in claims 1 – 4, and wherein preferably, the SCP product comprises biomass with dry matter concentration of at least 12% (w/v), or a biomass powder with a water content of no more than 5 % (w/w/).

Claim 14. A food or beverage product, a pet food product or animal feed comprising an SCP product as defined in claim 13.

Claim 15. Method of using a defoaming agent as defined in claims 1 – 5, for at least one of:

i) preventing pellet morphology;

ii) inducing dispersed morphology; and

iii) maintaining dispersed morphology;

of a strain of thermophilic fungus as defined in claim 5 or 6, when grown at a pH of less than 5.0 in a chemically defined medium as defined in claim 1.