Claims

1. A method for producing an aqueous extract of a cereal, said method comprising the steps of:

a. providing grains of a cereal;

b. subjecting the cereal grains to a step of germination thereby obtaining germinated grains, wherein said step of germination comprises incubating said grains in an aqueous solution until the grains have a water content of at least 30%, wherein at least 2 L O_2 per kg dry weight cereal grains is passed through said aqueous solution per h;

c. finely dividing said germinated grains, while said germinated grains have a water content of at least 20%, with the proviso that said cereal grains do not have a water content below 20 at any time between steps b) and c);

d. preparing an aqueous extract of said milled germinated grains,

thereby producing an aqueous extract of the cereal.

2. The method according to claim 1, wherein the grains of the cereal are submerged in the aqueous solution during the entire step of germination

3. The method according to claim 1, wherein the step of germination comprises

i. at least one step of incubating said grains in an aqueous solution, wherein at least 2 L O_2 per kg dry weight cereal grains is passed through said aqueous solution per h; and

ii. at least one step of incubating said cereal grains in air.

4. The method according to claim 1, wherein the step of germination comprises or consists of

a) one step of incubating said grains in an aqueous solution, wherein at least 2 L O_2 per kg dry weight cereal grains is passed through said aqueous solution per h;

b) one step of air-rest, wherein said cereal grains are incubated in air;

c) one step of incubating said grains in an aqueous solution, wherein at least 2 L O_2 per kg dry weight cereal grains is passed through said aqueous solution per h.;

d) one step of air-rest, wherein said cereal grains are incubated in air.

54. The method according to any one of the preceding claims, wherein at least 3 L, more preferably at least 4 L, yet more preferably at least 5 L, even more preferably at least 6 L O_2 per kg dry weight of cereal grains is passed through said aqueous solution per h.

65. The method according to any one of the preceding claims, wherein said O_2 is comprised within a gas mixture, wherein the gas mixture is atmospheric air.

76. The method according to any one of the preceding claims, wherein the entire step of germination does not exceed 72h, more preferably does not exceed 60h, even more preferably does not exceed 54h.

87. The method according to any one of the preceding claims, wherein the cereal is a hulled cereal, and the method comprises a step of removing at least part of said hull prior to incubating said grains in an aqueous solution.

98. The method according to any one of the preceding claims, wherein the germinated grains contains at the most 4 g rootlets (dry matter) per 100g germinated cereal grains (dry matter).

109. A method for producing an aqueous extract of a cereal, said method comprising the steps of:

A. providing germinated grains of a cereal having a water content of at least 20% with the proviso that said cereal grains have not had a water content below 20% at any time subsequent to germination;
wherein the cereal is a barley characterized by carrying a mutation in the gene encoding MMT, and
wherein the entire step of germinating said germinated grains did not exceed 72h;

A.B. finely dividing said germinated grains, while said germinated grains have a water content of at least 20%;

B.C. preparing an aqueous extract of said milled germinated grains,

thereby producing an aqueous extract of the cereal.

~~10. The method according to any one of the preceding claims, wherein the cereal is barley.~~

11. The method according to any one of the preceding claims, wherein the germinated grains have an α-amylase activity of at least 4 U/g cereal grain on a dry weight basis.

12. The method according to any one of the preceding claims, wherein the germinated grains have a β-amylase activity of at least 5 U/g cereal grain on a dry weight basis.

13. The method according to any one of the preceding claims, wherein the germinated grains have a limit dextrinase activity of at least 5 mU/g grain on a dry weight basis.

14. The method according to any one of the preceding claims, wherein the germinated grains contains at the most 4 g rootlets (dry matter) per 100g germinated cereal grains (dry matter).

15. The method according to any one of the preceding claims, wherein the aqueous extract comprises at least 10 g, such as at least 15 g maltose per L.

16. The method according to any one of the preceding claims, wherein the aqueous extract comprises at least 60 mg/L valine.

17. The method according to any one of the preceding claims, wherein the cereal is a barley characterized by carrying a mutation in the gene encoding LOX-1 and carrying a mutation in the gene encoding MMT.

18. The method according to any one of claims 1 to 9, wherein the cereal is a barley characterized by one or more of the following:

A. Carrying a mutation in the gene encoding a β-glucan synthase;
B. Carrying a mutation in the gene encoding LOX-1;
C. Carrying a mutation in the gene encoding LOX-2;
D. Carrying a mutation in the gene encoding MMT; and/or
E. Carrying a mutation in the gene encoding DELLA.

19. The method according to any one of claims 10 to 16, wherein the cereal is a barley further characterized by one or more of the following:

A. Carrying a mutation in the gene encoding a β-glucan synthase;
B. Carrying a mutation in the gene encoding LOX-1;
C. Carrying a mutation in the gene encoding LOX-2; and/or
D. Carrying a mutation in the gene encoding DELLA.

20. The method according to any one of the preceding claims, wherein the germinated grains have been prepared by a step of germination comprising incubating said grains in an aqueous solution, wherein O_2 is passed through said aqueous solution.

2117. A method for producing a beverage, said method comprising the steps of:

i. preparing an aqueous extract by the method according to any one of the preceding claims;
ii. processing said extract into a beverage.

2218. The method according to claim 1721, wherein step ii. comprises the steps of:

a. heating said aqueous extract optionally in the presence of hops or hops extract;
b. cooling the aqueous extract;
c. fermenting said aqueous extract with yeast, thereby producing a fermented beverage.