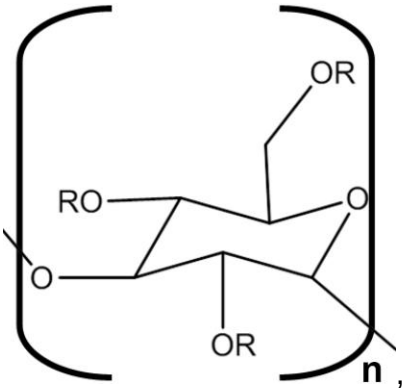
CLAIMS

What is claimed is:

1. A composition comprising a poly alpha-1,3-glucan ether compound represented by the structure:



wherein

(i) n is at least 800,

(ii) each R is independently an H or an organic group, and

(iii) the compound has a degree of substitution of about 0.05 to about 3.0, and the compound contains two or more types of said organic group.

2. The composition of Claim 1, wherein said organic group is a hydroxy alkyl group, alkyl group, or carboxy alkyl group.

3. The composition of Claim 2, wherein said organic group is a hydroxypropyl, dihydroxypropyl, hydroxyethyl, methyl, ethyl, or carboxymethyl group.

4. The composition of any one of Claims 1 to 3, wherein the degree of substitution is about 0.2 to about 2.0.

5. The composition of any one of Claims 1 to 4, wherein n is at least 900.

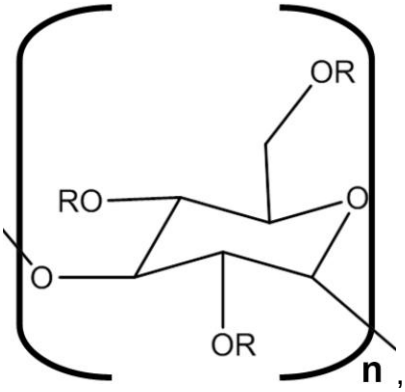
6. The composition of any one of Claims 1 to 5, wherein n is at least 1000.

7. The composition of any one of Claims 1 to 6, wherein the percentage of glycosidic linkages of the poly alpha-1,3-glucan ether compound that are alpha-1,3 is at least 99%.

8. The composition of any one of Claims 1 to 7, wherein the percentage of glycosidic linkages of the poly alpha-1,3-glucan ether compound that are alpha-1,3 is 100%.

9. A method of producing a poly alpha-1,3-glucan ether compound, the method comprising:

(a) contacting poly alpha-1,3-glucan in a reaction under alkaline conditions with at least one etherification agent comprising an organic group, wherein the etherification agent is etherified to the poly alpha-1,3-glucan thereby producing a poly alpha-1,3-glucan ether compound represented by the structure:



wherein

(i) n is at least 800,

(ii) each R is independently an H or the organic group, and

(iii) the compound has a degree of substitution of about 0.05 to about 3.0, and the compound contains two or more types of said organic group; and

(b) optionally, isolating the poly alpha-1,3-glucan ether compound produced in step (a).

10. The method of Claim 9, wherein said alkaline conditions comprise an alkali hydroxide solution.

11. The method of Claim 9, wherein the reaction comprises an organic solvent.

12. The method of any one of Claims 9 to 11, wherein step (a) further comprises:

(i) heating the reaction; and/or

(ii) neutralizing the pH of the reaction.

13. The method of any one of Claims 9 to 12, wherein said organic group is a hydroxy alkyl group, alkyl group, or carboxy alkyl group.

14. The method of any one of Claims 9 to 13, wherein the poly alpha-1,3-glucan is in a form of a slurry.

15. The method of Claim 14, wherein the slurry comprises poly alpha-1,3-glucan, sucrose, glucose, fructose and a glucosyltransferase enzyme.

16. The method of any one of Claims 9 to 15, wherein the poly alpha-1,3-glucan is in a form of a wet cake.

17. The method of any one of Claims 9 to 16, wherein n is at least 1000.

18. The method of any one of Claims 9 to 17, wherein the percentage of glycosidic linkages of the poly alpha-1,3-glucan of step (a) that are alpha-1,3 is about 100%, and wherein the percentage of glycosidic linkages of the poly alpha-1,3-glucan ether compound that are alpha-1,3 is about 100%.