

What is claimed is:

1. A process for preparing fructose from a saccharide comprising:
a step of converting fructose 6-phosphate (F6P) to a fructose catalyzed by fructose 6-phosphate phosphatase (F6PP) in the presence of a divalent cation selected from the group consisting of Mg^{2+} , Zn^{2+} , Ca^{2+} , Co^{2+} , Mn^{2+} , and combinations thereof.
2. The process of claim 1, wherein the step of converting F6P to fructose catalyzed by F6PP is in the presence of Mg^{2+} and a divalent cation selected from the group consisting of Zn^{2+} , Ca^{2+} , Co^{2+} , Mn^{2+} , and combinations thereof.
3. The process of claim 1, wherein the concentration of the divalent cation ranges from 0.01 mM to 500 mM.
4. The process of any one of claims 1-3, wherein the divalent cation is Co^{2+} or Mn^{2+} .
5. The process of any one of claims 1-4, wherein the divalent cation is Co^{2+} .
6. The process of any one of claims 1-4, wherein the divalent cation is Mn^{2+} .
7. The process of any one of claims 1-6, further comprising a step of converting glucose 6-phosphate (G6P) to the F6P, wherein the step is catalyzed by phosphoglucosomerase (PGI).
8. The process of claim 7, further comprising the step of converting glucose 1-phosphate (G1P) to the G6P, wherein the step is catalyzed by phosphoglucomutase (PGM).
9. The process of claim 1, wherein the saccharide is selected from sucrose, starch, or a starch derivative selected from the group consisting of amylose, amylopectin, soluble starch, amyloextrin, maltotriose, maltodextrin, maltose, and glucose.
10. The process of claim 9, further comprising the step of converting the saccharide to the G1P, wherein the step is catalyzed by at least one enzyme.
11. The process of claim 10, wherein the at least one enzyme in the step of converting a saccharide to the G1P is selected from the group consisting of alpha-glucan phosphorylase (αGP), maltose phosphorylase, and sucrose phosphorylase, and mixtures thereof.

12. The process of claim 11, wherein the saccharide is starch, further comprising the step of converting starch to a starch derivative wherein the starch derivative is prepared by enzymatic hydrolysis of starch or by acid hydrolysis of starch.
13. The process of claim 11 or 12, wherein 4-glucan transferase (4GT) is added to the process.
14. The process of any one of claims 12-13, wherein the starch derivative is prepared by enzymatic hydrolysis of starch catalyzed by isoamylase, pullulanase, alpha-amylase, or a combination thereof.
15. The process of any one of claims 1-14, wherein the process steps are conducted at a temperature ranging from about 37°C to about 95°C, at a pH ranging from about 5.0 to about 8.0, and/or for about 8 hours to about 48 hours.
16. The process of any one of claims 1-15, wherein the process steps are conducted in a single bioreactor.
17. The process of any one of claims 1-16, wherein the process steps are conducted ATP-free, NAD(P)(H)-free, at a phosphate concentration from about 0.1 mM to about 150 mM, the phosphate is recycled, and/or at least one step of the process involves an energetically favorable chemical reaction.