CLAIMS

What is claimed is:

1 . Method of preparing D-psicose comprising the steps of:

(i) providing a mixture of D-psicose and D-fructose; and

(ii) contacting the mixture of D-psicose and D-fructose with a probiotic microorganism that is capable of metabolizing D-fructose but not D-psicose and capable of converting D-fructose into L-lactic acid and subjecting the microorganism to culture conditions that allow fermentative removal of D-fructose from the mixture of D-psicose and D-fructose with concomitant production of L-lactic acid, wherein the probiotic microorganism that is selective for D-fructose and capable of converting D-fructose into L-lactic acid is *Lactobacillus rhamnosus* GG.

2. The method of claim 1 , wherein the mixture of D-psicose and D-fructose is provided by enzymatically converting D-fructose into D-psicose by a D-psicose 3-epimerase (DPEase) that is a member of EC 5.1.3.30 , D-tagatose 3-epimerase (DTEase) that is a member of EC 5.1.3.31, or a cell comprising said DPEase or DTEase.

3. The method of claim 2, wherein the cell comprising said DPEase or DTEase is a recombinant cell.

4. The method of claim 2, wherein the DPEase is of *Agrobacterium tumefaciens* origin.

5. The method of claim 2, wherein the DPEase has the amino acid sequence set forth in any one of SEQ ID NOs:1 -3.

6. The method of claim 1, wherein the fermentative removal of D-fructose is carried out at a pH range between 6.5 and 7.5.

7. The method of claim 1, wherein in the mixture of D-fructose and D-psicose the weight ratio of D-fructose to D-psicose is selected from at least 1 :1.

8. The method of claim 1, wherein step (ii) is carried out under conditions and for a period of time that allows the microorganism to metabolize substantially all D-fructose from the mixture.

9. The method of claims 1, wherein the method further comprises the step (iii) of isolating the D-psicose.

10. The method of claim 6, wherein the fermentative removal of D-fructose is carried out at an initial total concentration of D-psicose and D-fructose of 200 g/L or less.

11. The method of claim 9, wherein isolating the D-psicose is by centrifugation.

12. The method of claim 9, wherein isolating the D-psicose is by chromatography.

13. The method of claim 1, wherein in the mixture of D-fructose and D-psicose the weight ratio of D-fructose to D-psicose is selected from at least 1.5:1.

14. The method of claim 1, wherein in the mixture of D-fructose and D-psicose the weight ratio of D-fructose to D-psicose is selected from at least 2:1.

15. Method for fermentative removal of D-fructose from a mixture of D-psicose and D-fructose comprising:

using a probiotic microorganism that is capable of metabolizing D-fructose but not D-psicose and capable of converting D-fructose into L-lactic acid for fermentative removal of D-fructose from a mixture of D-psicose and D-fructose, wherein the probiotic microorganism that is selective for D-fructose and capable of converting D-fructose into L-lactic acid is *Lactobacillus rhamnosus* GG.