What is claimed is:

1. A preparation method of resistant dextrin with high dietary fiber content, comprising the following steps:

mixing starch milk and a liquefying enzyme for liquefaction to obtain a liquefied liquid; wherein the liquefied liquid has a DE value of 8% to 11%;

subjecting the liquefied liquid to undergo a molecular rearrangement reaction under an acidic condition(s) to obtain a resistant dextrin; wherein the resistant dextrin has a dietary fiber content of ≥93% by mass.

2. The preparation method according to claim 1, wherein the starch is slowly digestible starch (SDS).

3. The preparation method according to claim 1 or 2, wherein the starch is pea starch, corn starch, wheat starch, or potato starch.

4. The preparation method according to any one of claims 1-3, wherein, based on the dry basis of the starch milk, the amount of the liquefying enzyme is 60 to 100 mL/ton.

5. The preparation method according to any one of claim 1-4, wherein the liquefaction is performed at 95 to 115°C for 40 to 60 minutes.

6. The preparation method according to claim 1, wherein the method further comprises: an enzyme inactivation step before the molecular rearrangement reaction; wherein the enzyme inactivation is acidic enzyme inactivation, and the acidic enzyme inactivation is performed by adjusting the pH value of the liquefied liquid to 3 to 4.

7. The preparation method according to claim 1 or 6, wherein the acidic condition for the molecular rearrangement reaction is pH value = 1.5 to 2.

8. The preparation method according to claim 1, wherein the molecular rearrangement reaction is performed at 130 to 150 °C for 1.5 to 2.5 hours.

9. The preparation method according to claim 1, wherein the starch milk has a solid content of 30 to 40 wt% and a pH value of 5 to 6.

10. The preparation method according to claim 1, wherein the method further comprises: after the molecular rearrangement reaction, sequentially subjecting the feed liquid obtained from the molecular rearrangement reaction to decolorization, desalination, concentration and drying; wherein the decolorization is activated carbon decolorization, and the mass of activated carbon used in the activated carbon decolorization is 0.5% to 1% of the dry basis mass in the feed liquid.

11. The preparation method according to claim 10, wherein the desalination is ion exchange resin desalination, and a combination of strong acid cation exchange resin D001, strong base anion exchange resin D202 and strong acid cation exchange resin D001 is used in the ion exchange resin desalination.

12. A resistant dextrin with high dietary fiber content prepared by the preparation method according to any one of claims 1 to 11, wherein the resistant dextrin with high dietary fiber content has a dietary fiber content of ≥93% by mass, and a DE value of ≤5%.