Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information for the article

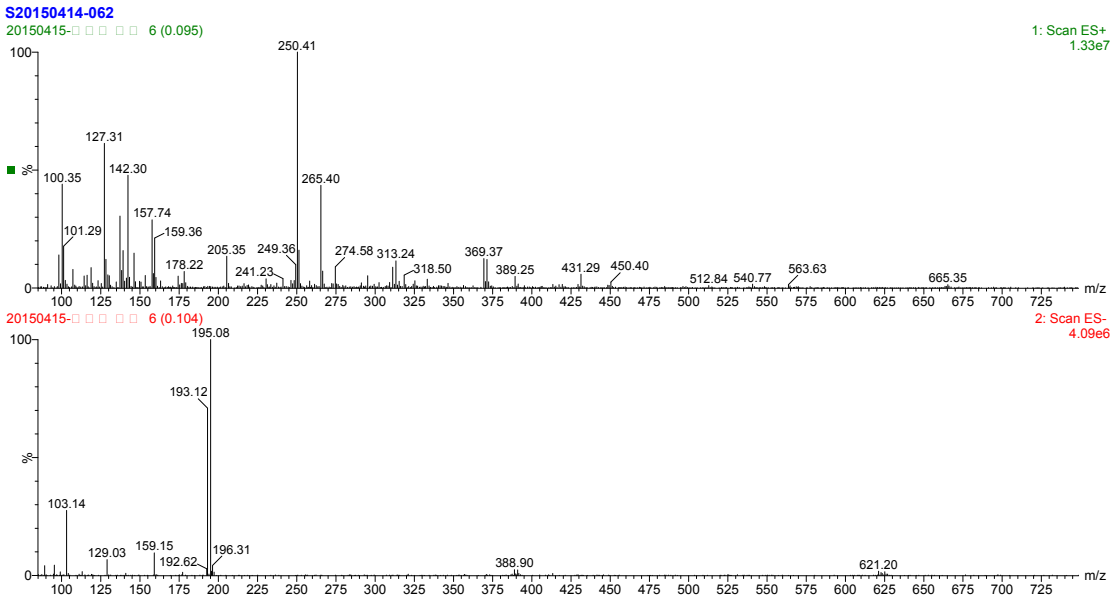

Fig. S1 ESI-MS spectra data of galactonic acid

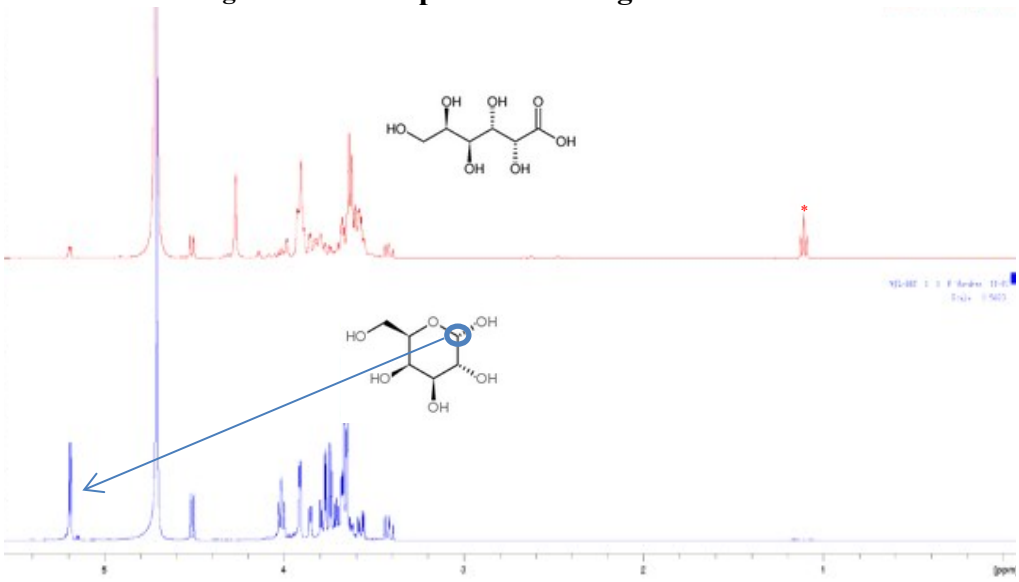

Fig. S2 ^{1}H NMR of galactonic acid and galactose

∗ represents the residue ethanol in the product of galactonic acid obtained from biotransformation after precipitated with 95% ethanol, the residue ethanol was still observed from the NMR although the sample was dried in air.

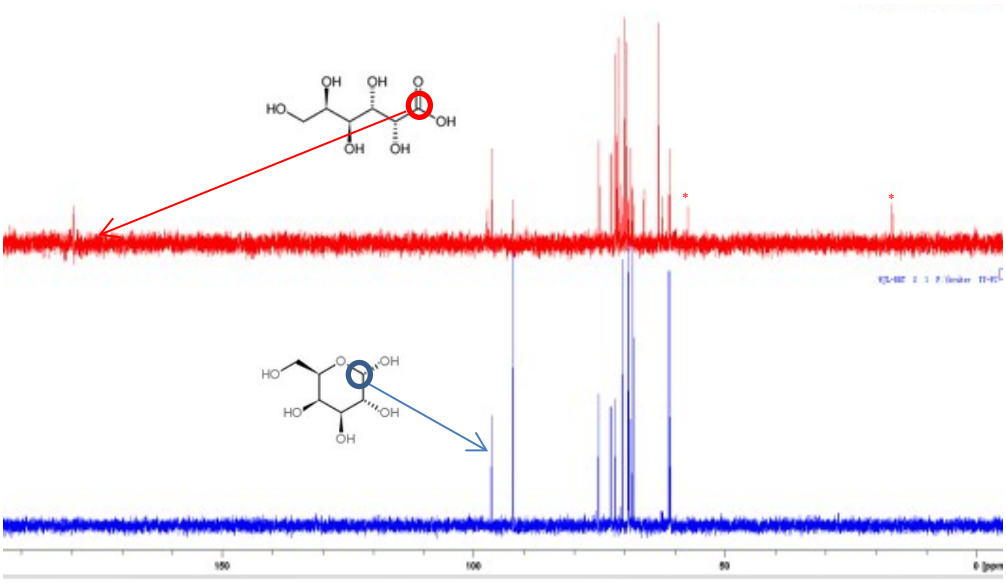

Fig. S3 ^{13}C NMR of galactonic acid and galactose

* represents the residue ethanol in the product of galactonic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

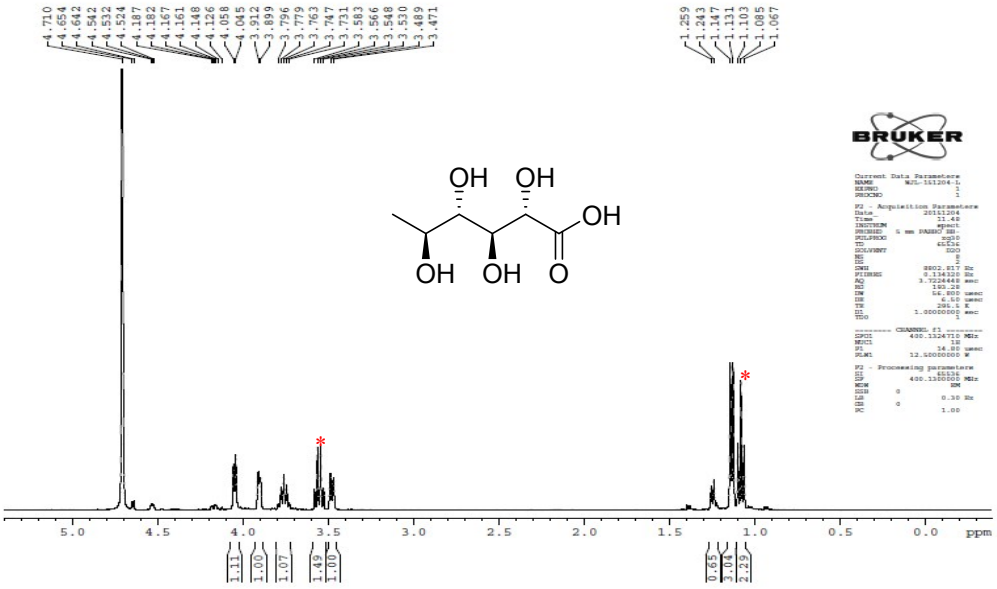

Fig. S4 ^{1}H NMR of standard L-rhamnonic acid

* represents the residue ethanol in the standard L-rhamnonic acid bought from Sigma, and the purity of which is ⩾90% (HPLC)

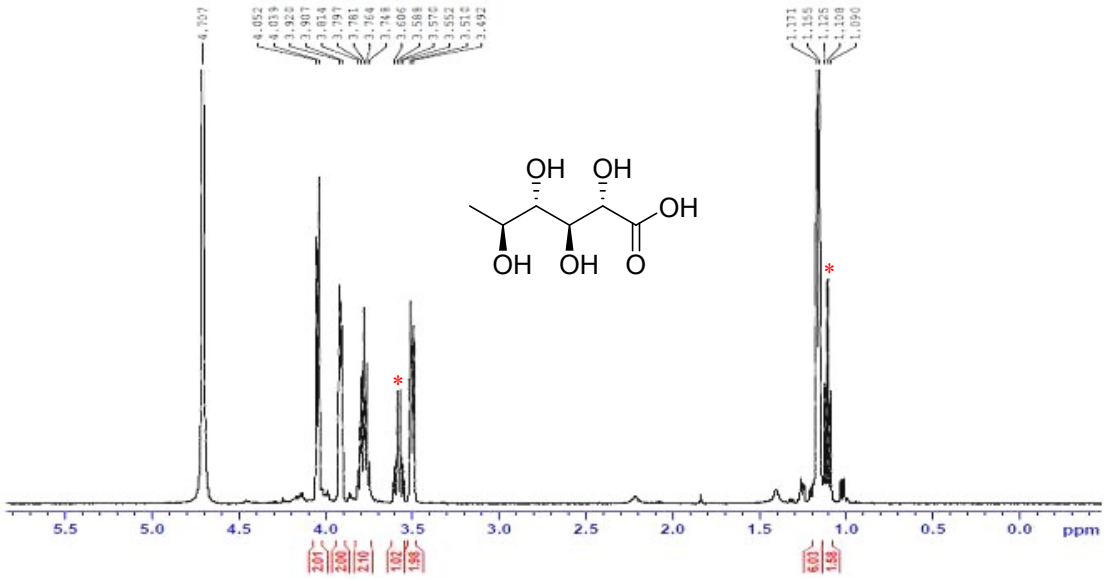

Fig. S5 ^{1}H NMR of L-rhamnonic acid obtained from biotransformation

* represents the residue ethanol in the product of L-rhamnonic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

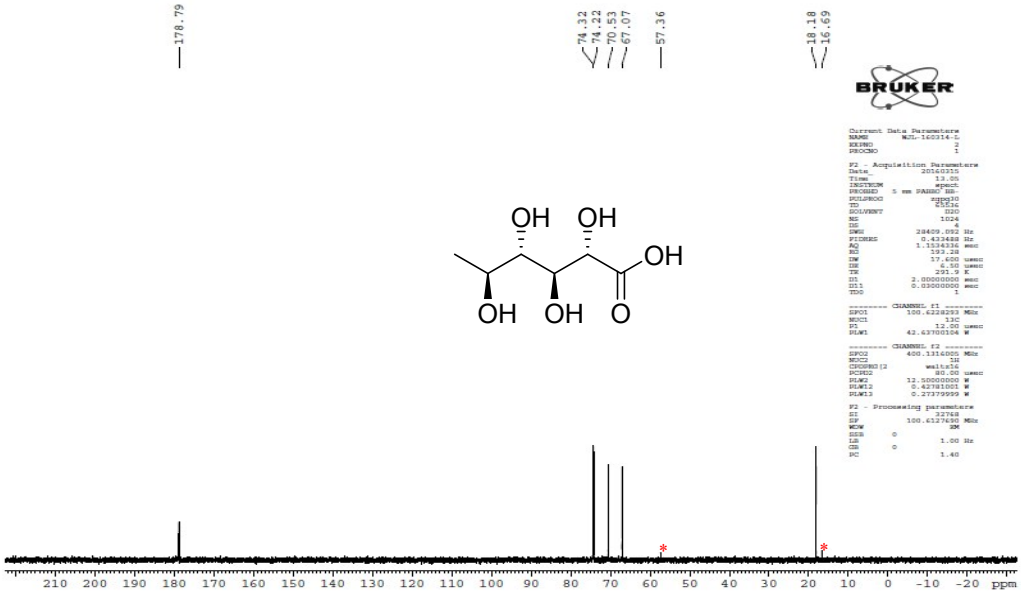

Fig. S6 ^{13}C NMR of standard L-rhamnonic acid

* represents the residue ethanol in the standard L-rhamnonic acid bought from Sigma, and the purity of which is ⩾90% (HPLC)

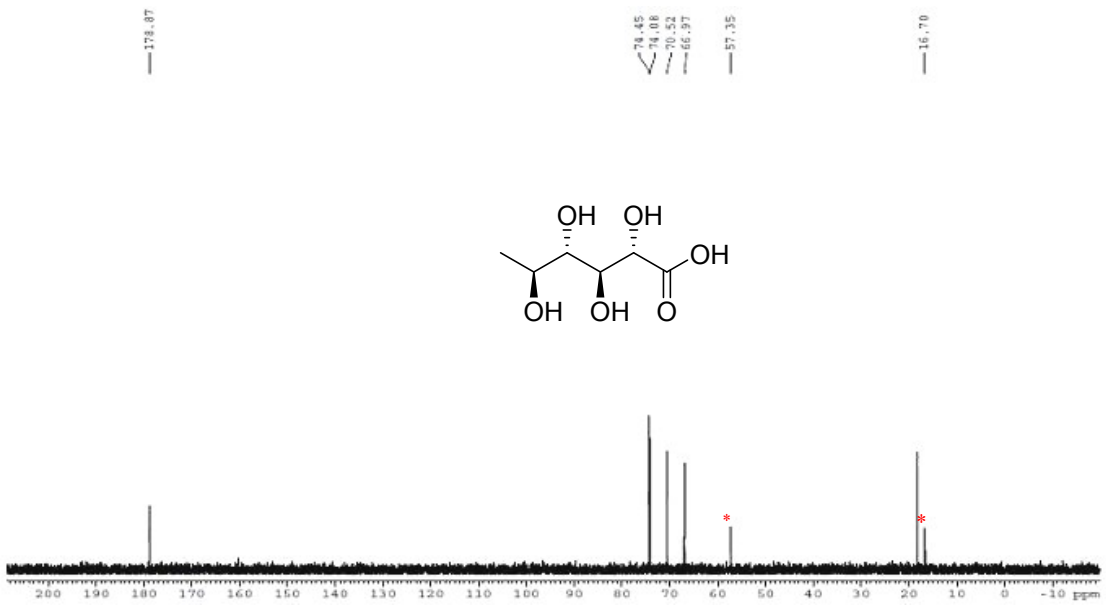

Fig. S7 ^{13}C NMR of L-rhamnonic acid obtained from biotransformation

* represents the residue ethanol in the product of L-rhamnonic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

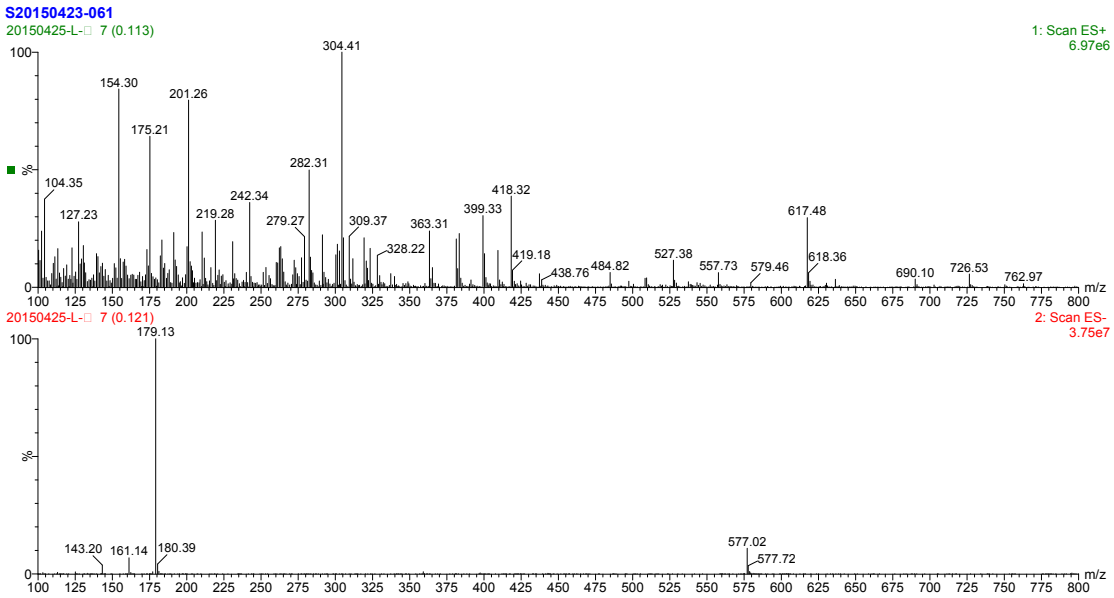

Fig. S8 ESI-MS spectra data of L-rhamnonic acid

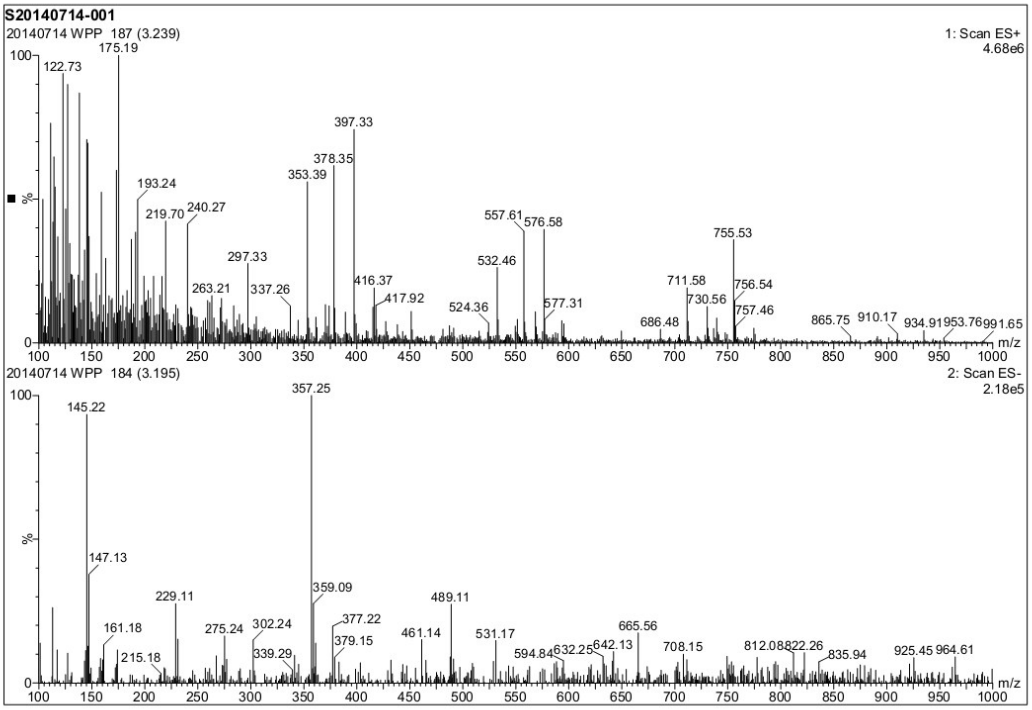

Fig. S9 ESI-MS spectra data of maltobionic acid

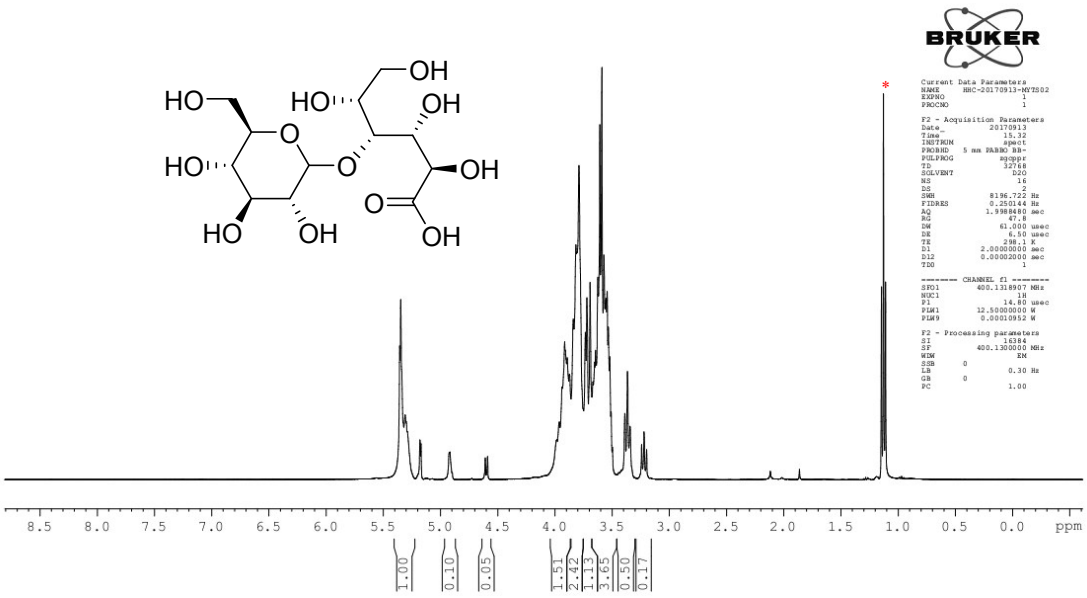

Fig. S10 ^{1}H NMR of maltobionic acid

∗ represents the residue ethanol in the product of maltobionic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

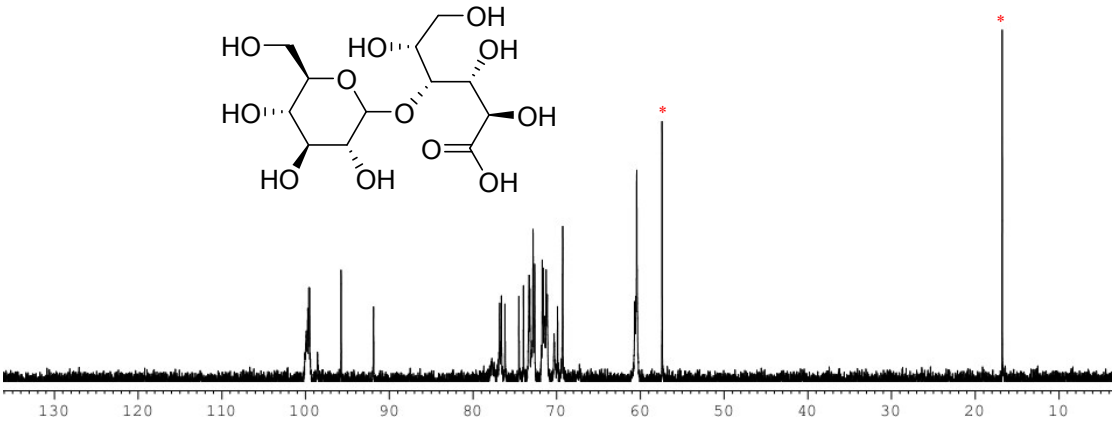

Fig. S11 ^{13}C NMR of maltobionic acid

* represents the residue ethanol in the product of maltobionic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

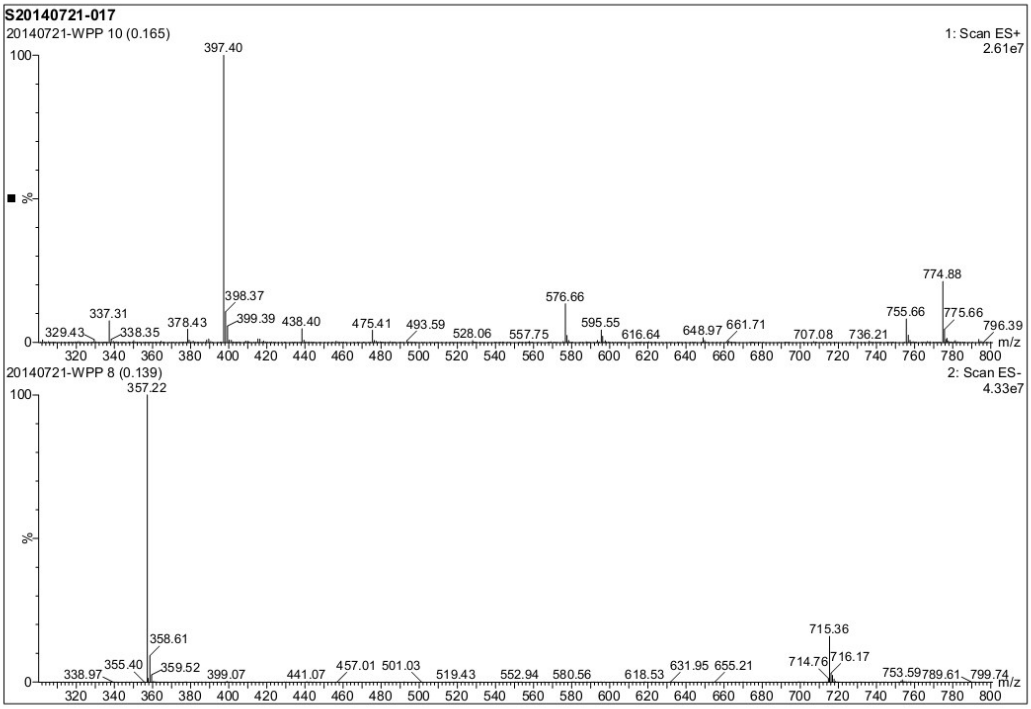

Fig. S12 ESI-MS spectra data of lactobionic acid

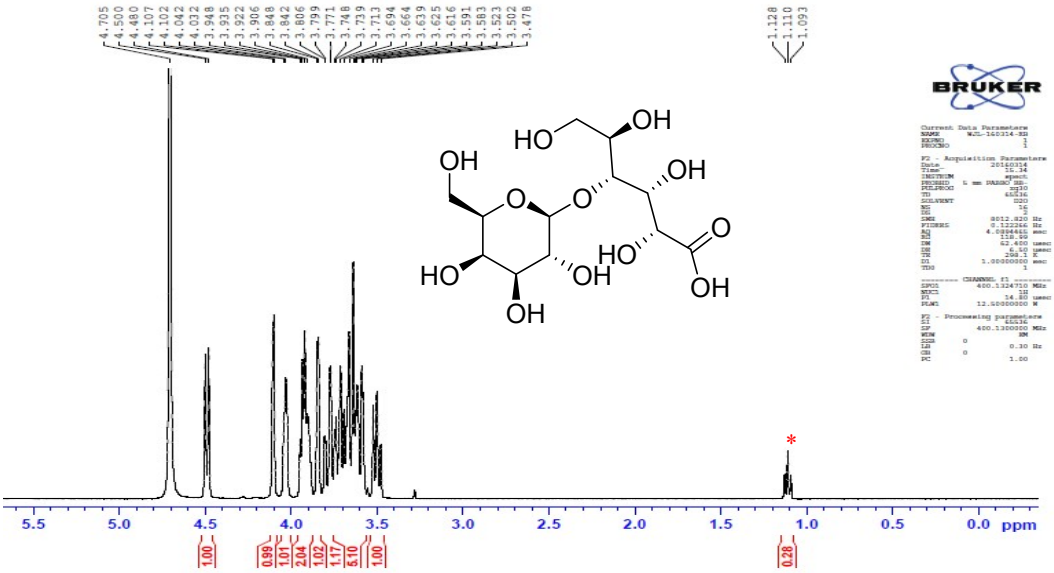

Fig. S13 ^{1}H NMR of standard lactobonic acid

* represents the residue ethanol in the standard lactobonic acid bought from Sigma, and the purity of which is ⩾ 97% (HPLC)

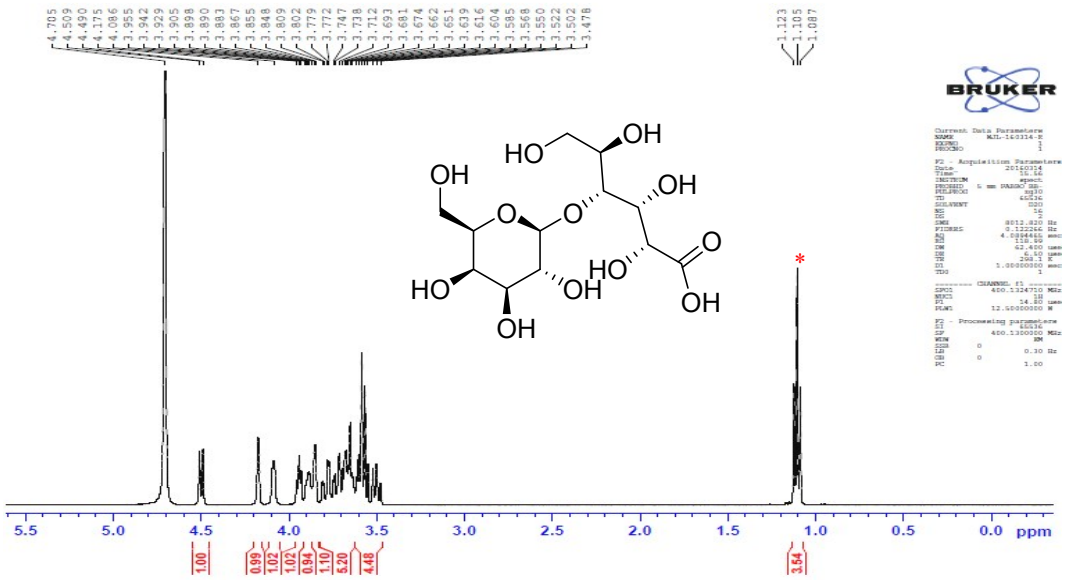

Fig. S14 ^{1}H NMR of lactobonic acid obtained from biotransformation

* represents the residue ethanol in the product of lactobonic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

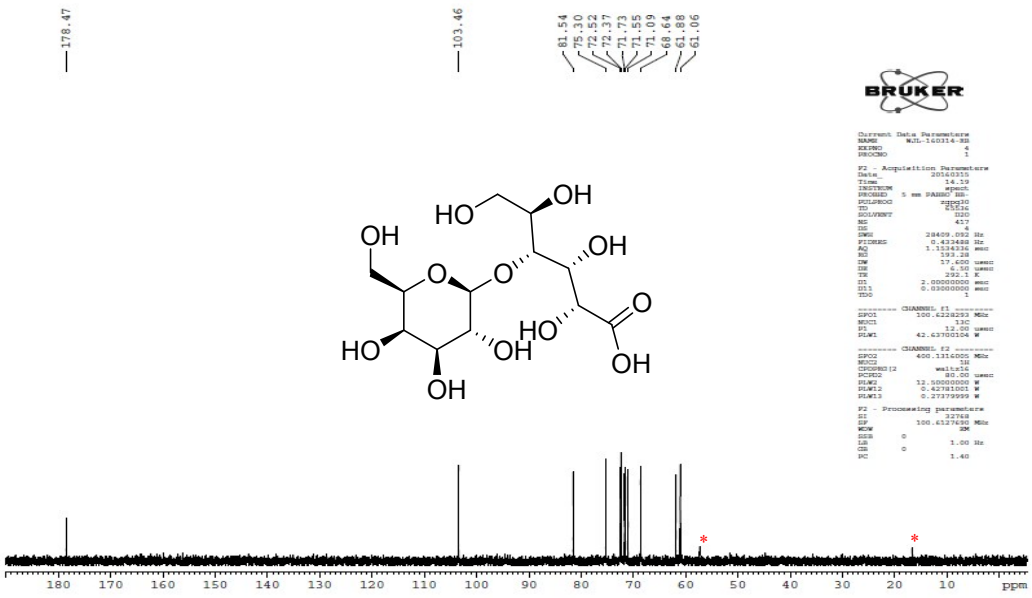

Fig. S15 ^{13}C NMR of standard lactobonic acid

* represents the residue ethanol in the standard lactobonic acid bought from Sigma, and the purity of which is ⩾ 97% (HPLC)

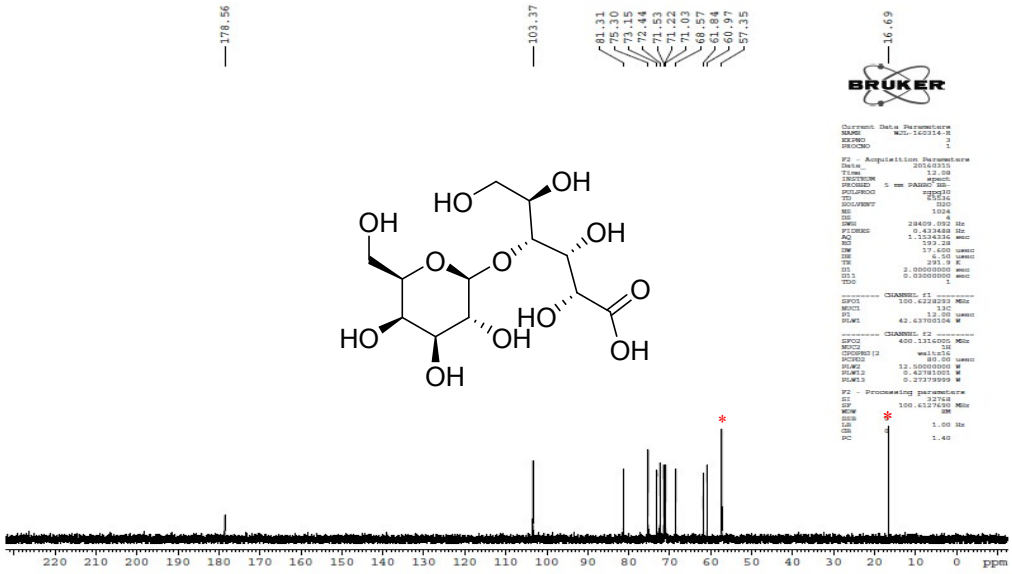

Fig. S16 ^{13}C NMR of lactobonic acid obtained from biotransformation

* represents the residue ethanol in the product of lactobonic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

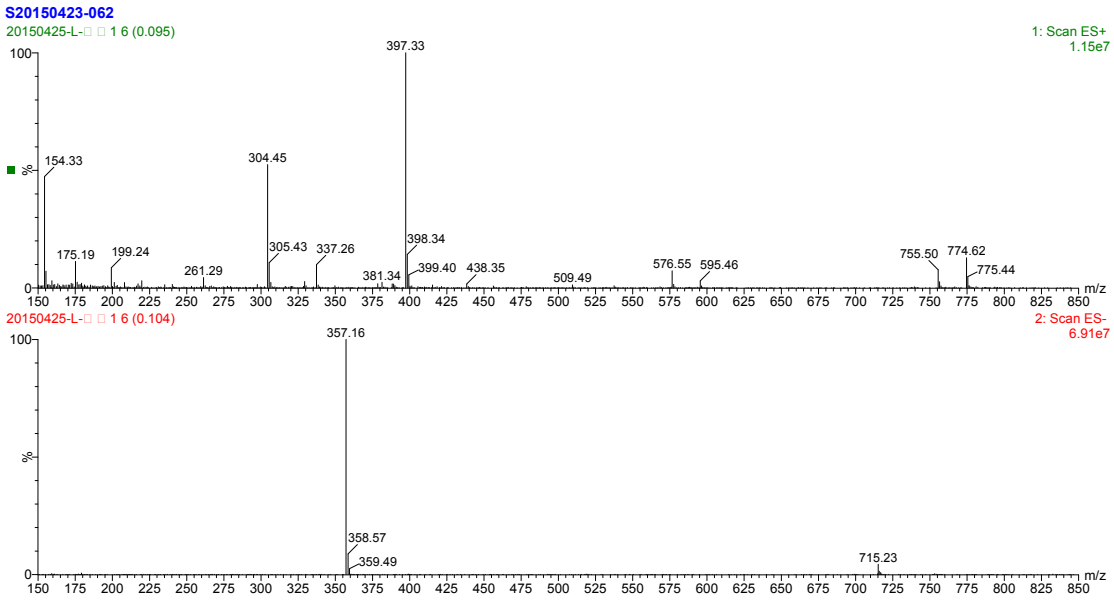

Fig. S17 ESI-MS spectra data of cellobionic acid

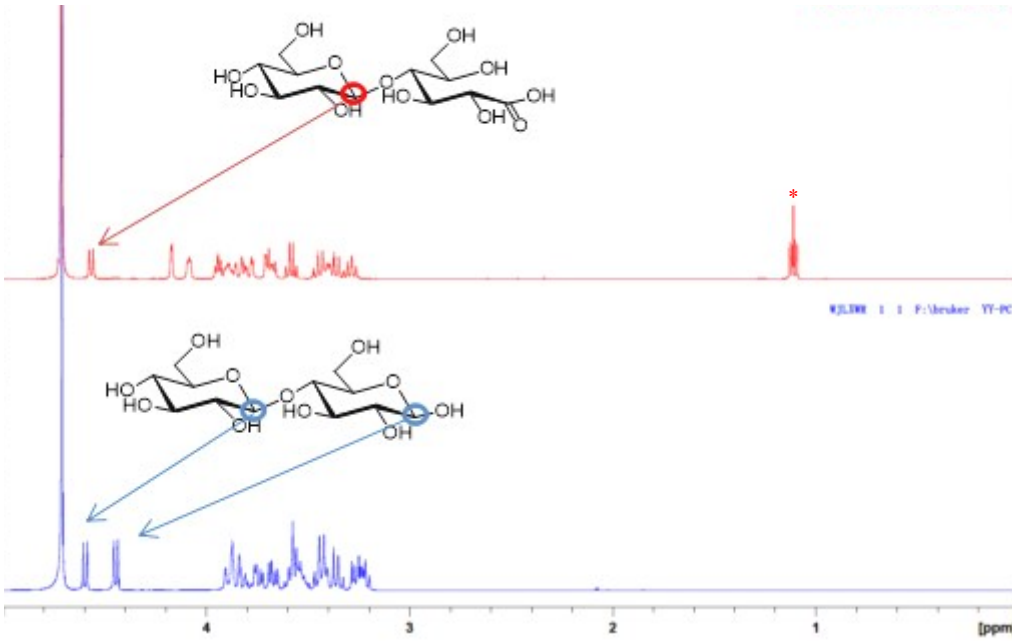

Fig. 18 ^{1}H NMR of cellobionic acid and cellobiose

∗ represents the residue ethanol in the product of cellobionic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

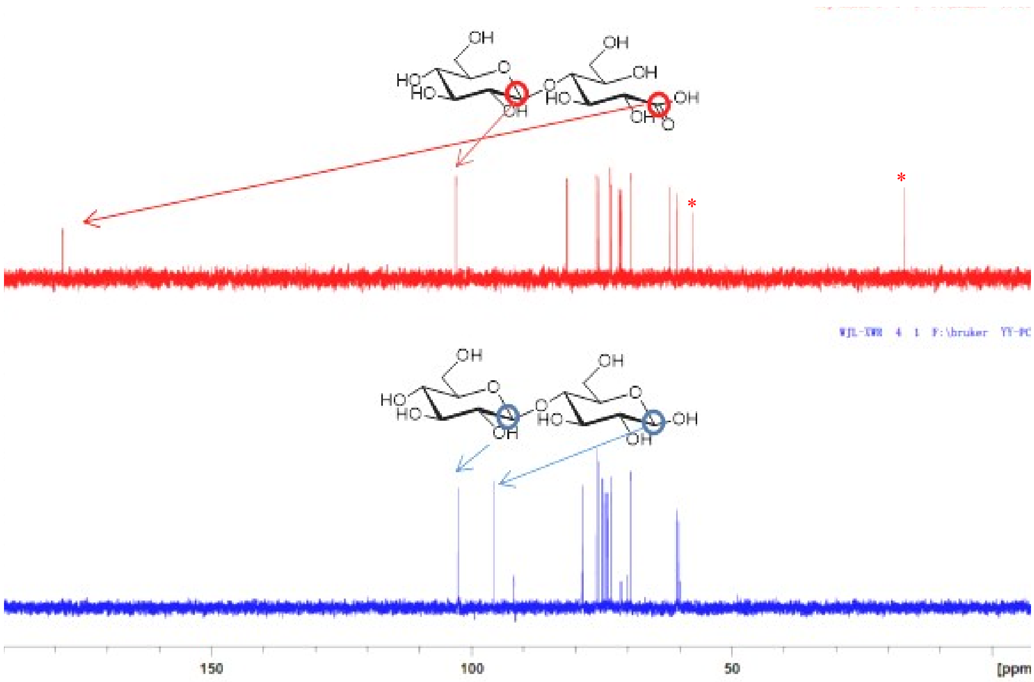

Fig. S19 ^{13}C NMR of cellobionic acid and cellobiose

* represents the residue ethanol in the product of cellobionic acid obtained from biotransformation after precipitated with 95% ethanol and then dried in air.

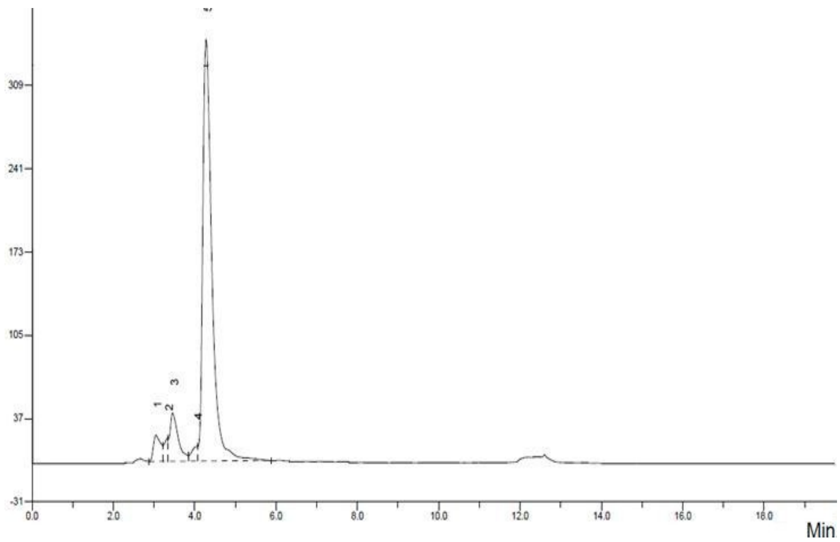

Fig. S20 HPLC profiles of the L-rhamnonic acid obtained from biotransformation

The peak appeared at about 4.4 min represents galactonic acid

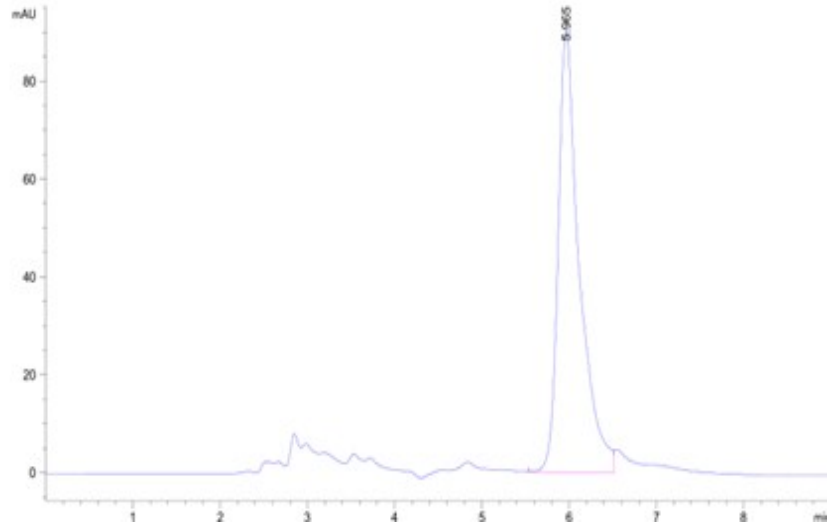

Fig. S21 HPLC profiles of the maltobionic acid obtained from biotransformation The peak appeared at about 5.965 min represents maltobionic acid

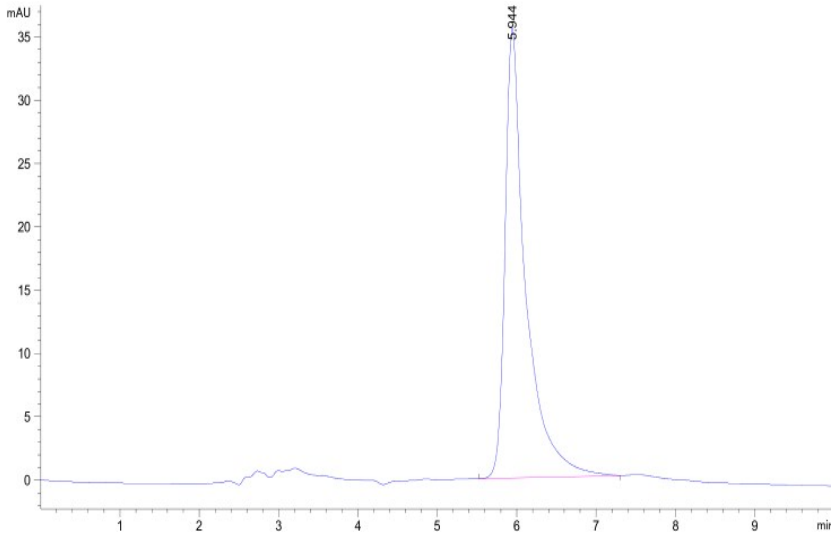

Fig. S22 HPLC profiles of the lactobionic acid obtained from biotransformation The peak appeared at about 5.944 min represents lactobionic acid