

Supplementary Information

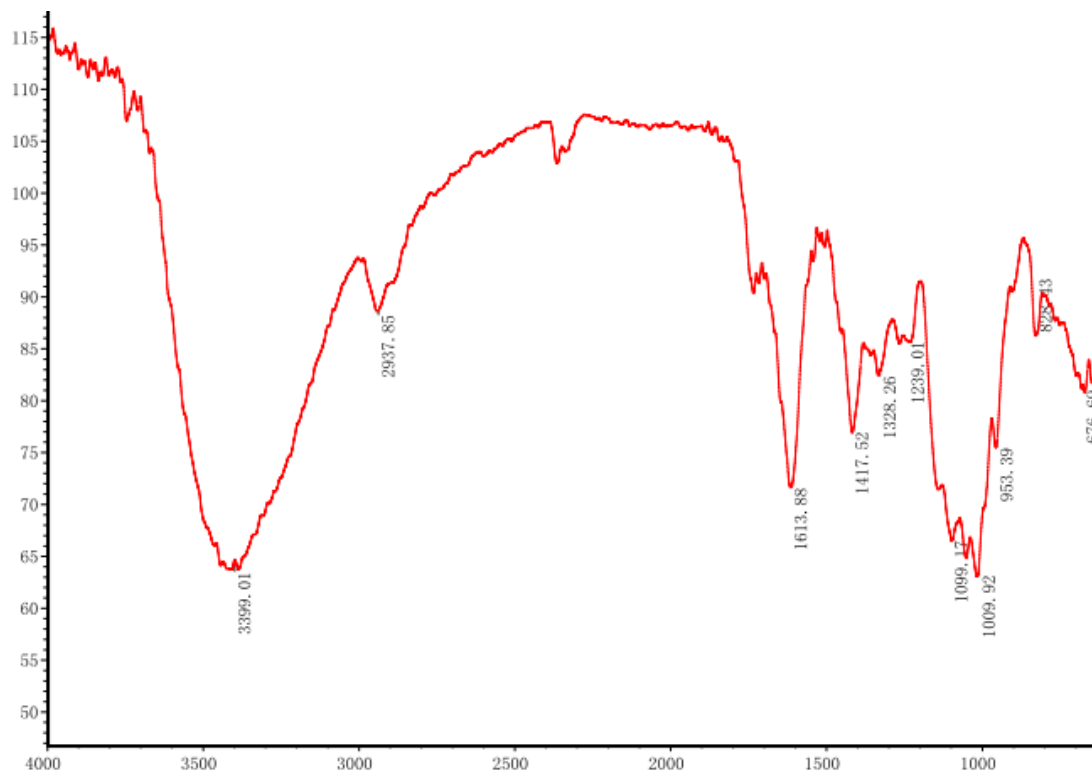


Figure S1. Infrared absorption spectrum of ZCMP.

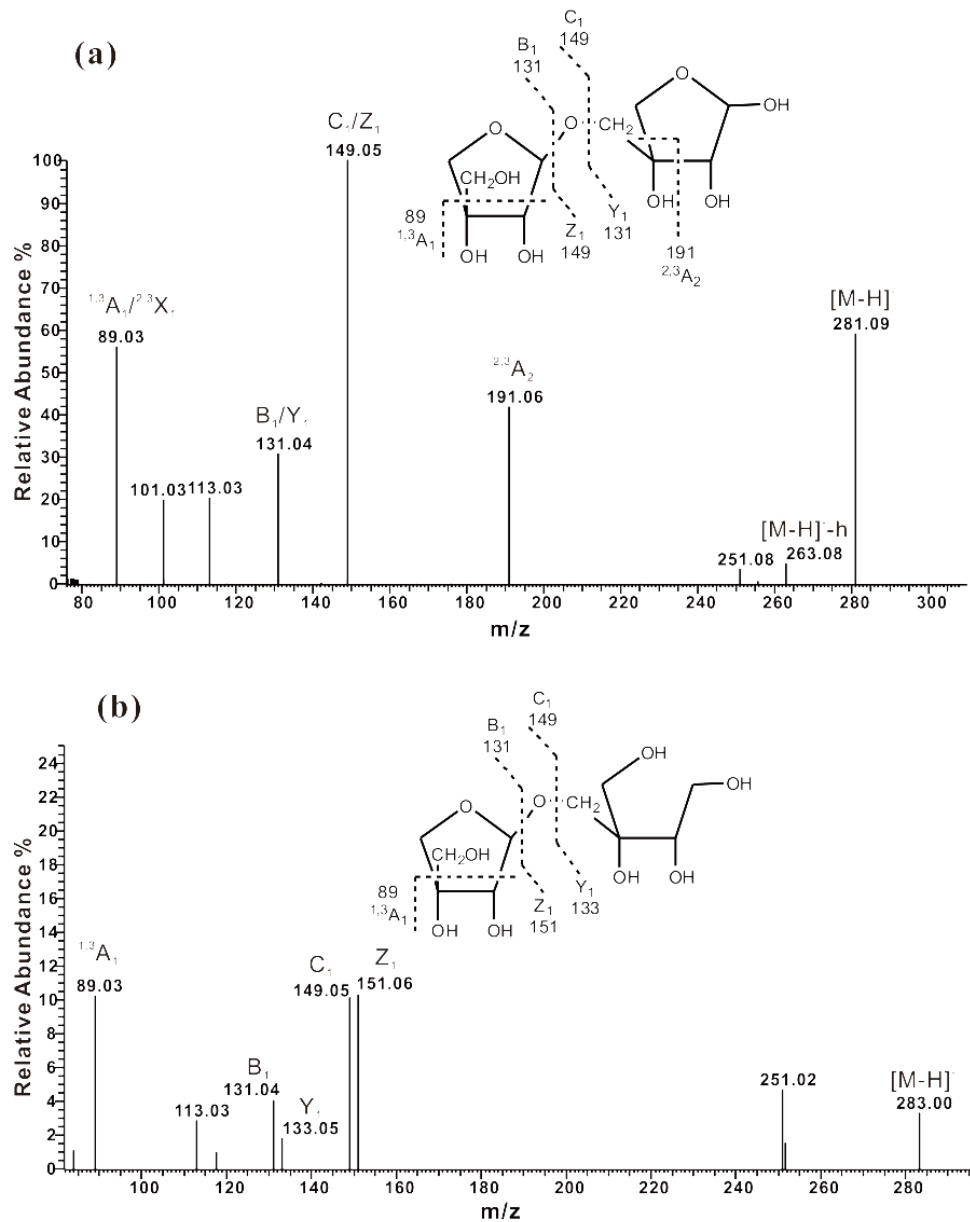


Figure S2. Negative-ion ESI-CID-MS² product-ion spectra of disaccharide Api_2 from ZCMP-S. **(a)** Sequence analysis of disaccharide Api_2 at m/z 281; **(b)** Sequence analysis of disaccharide alditol at m/z 283.

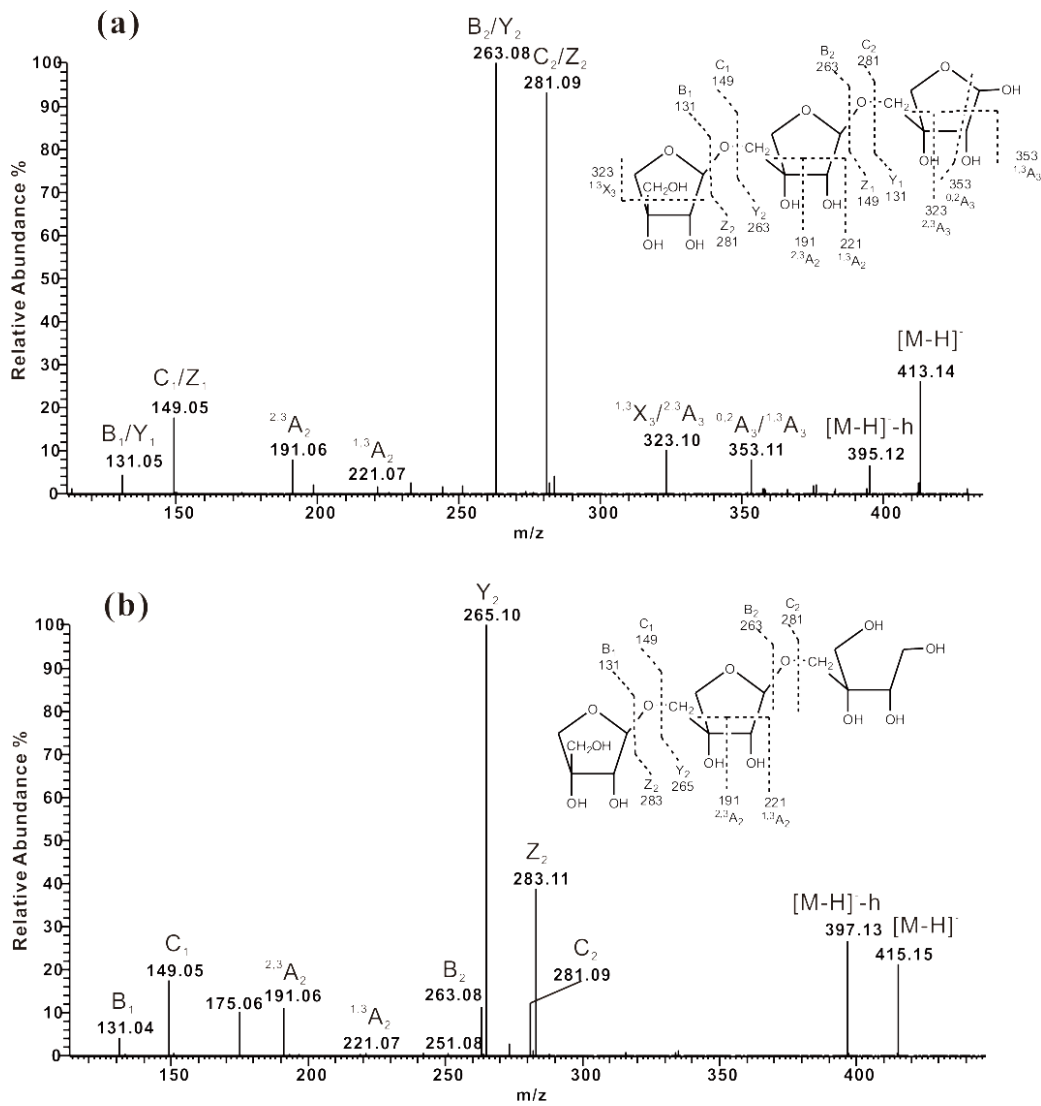


Figure S3. Negative-ion ESI-CID-MS² product-ion spectra of trisaccharide Ap₁₃ from ZCMP-S. **(a)** Sequence analysis of trisaccharide Ap₁₃ at *m/z* 413; **(b)** Sequence analysis of trisaccharide alditol at *m/z* 415.

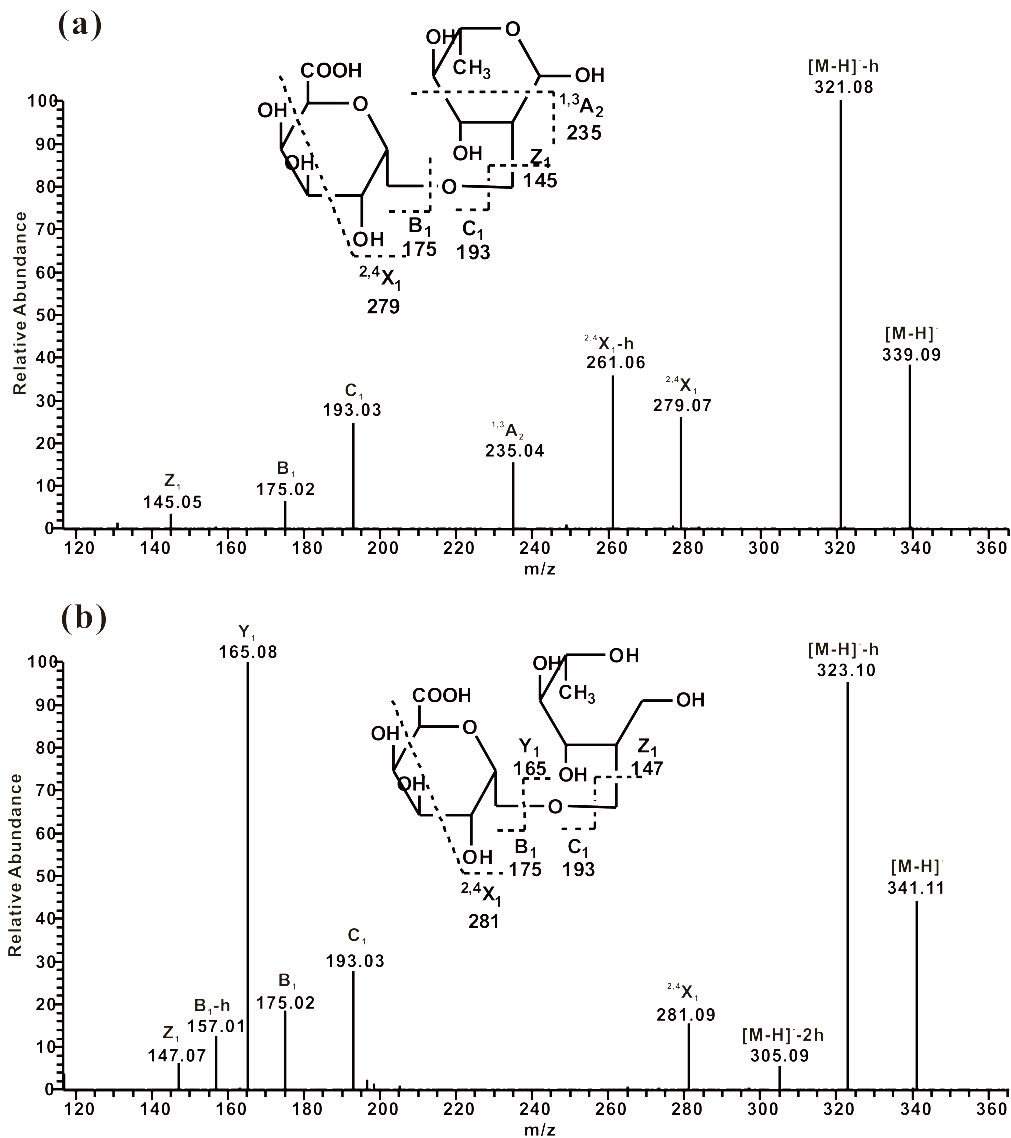


Figure S4. Negative-ion ESI-CID-MS² product-ion spectra of disaccharide GalA-Rha from ZCMP-PS. **(a)** Sequence analysis of disaccharide GalA-Rha at m/z 339; **(b)** Sequence analysis of disaccharide alditol at m/z 341.