

Modulating effects of polysaccharides from the fruits of *Lycium barbarum* on immune response and gut microbiota in cyclophosphamide-treated mice

Yu Ding,^a Yamei Yan,^b Dan Chen,^a Linwu Ran,^c Jia Mi,^b Lu Lu,^b Bo Jing,^b

Xiaoying Li,^b Xiaoxiong Zeng,^{a,*} Youlong Cao^{b,*}

^a College of Food Science and Technology, Nanjing Agricultural University, Nanjing 210095, Jiangsu, China

^b Institute of Wolfberry Engineering Technology, Ningxia Academy of Agriculture and Forestry Sciences, Yinchuan 750002, Ningxia, China

^c Laboratory Animal Center, Ningxia Medical University, Yinchuan 750004, Ningxia, China

*To whom correspondence should be addressed. Tel & Fax: +86 25 84396791, E-mail: zengxx@njau.edu.cn (X. Zeng); +86 951 6886783, E-mail address: youlongck@126.com (Y. Cao)

Table S1. Target Genes and Primers Sequence

Gene	Sequence (5'-3')
TNF- α	F: CTCATGCACCACCATCAAGG R: ACCTGACCACTCTCCCTTTG
IL-1 β	F: AGCTTCAAATCTCGCAGCAG R: TCTCCACAGCCACAATGAGT
TLR4	F: GCTCTCAGCCATCCACAAAG R: GAGTCGGGAAGAGGAAGAGG
MyD88	F: TTTCCCAGTATCCTGCGGTT R: GCGGAAGAACACAGACAGAC
p65	F: GACACAGATGTGGTGAACG R: GTGAGGTGGATCCTTGGTGA
Occludin1	F: AGCACTTAACCTGCCTGGAT R: AGCCTGTGGAAGCAAGAGAT
Claudin5	F: TTCTTCTATGCGCAGTTGGC R: TTGGTGCCTACTTCACCGAT
MUC2	F: GCTCTCAAATGGTGCAGAGG R: AGTGGGAAGGGATGAATGGG
GAPDH	F: GGACTTACAGAGGTCCGCTT R: CTATAGGGCCTGGGTCAGTG

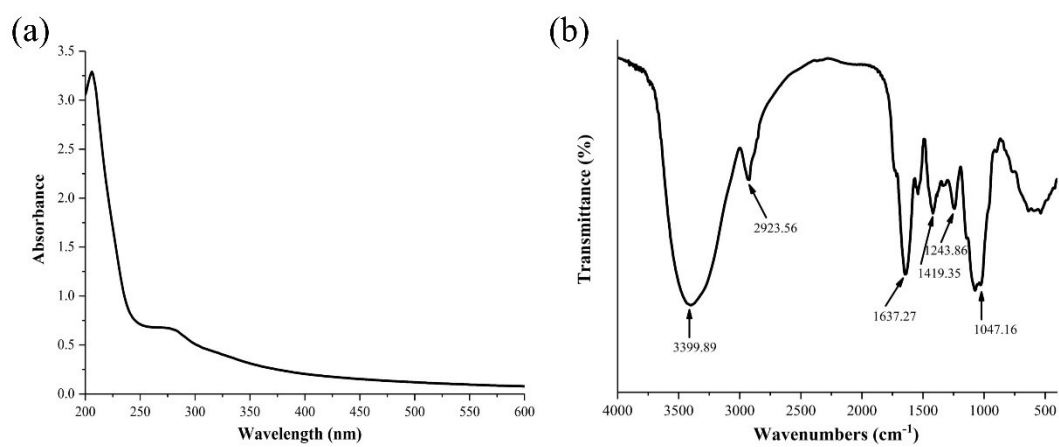


Fig. S1. UV (a) and FT-IR (b) spectra of LBPS

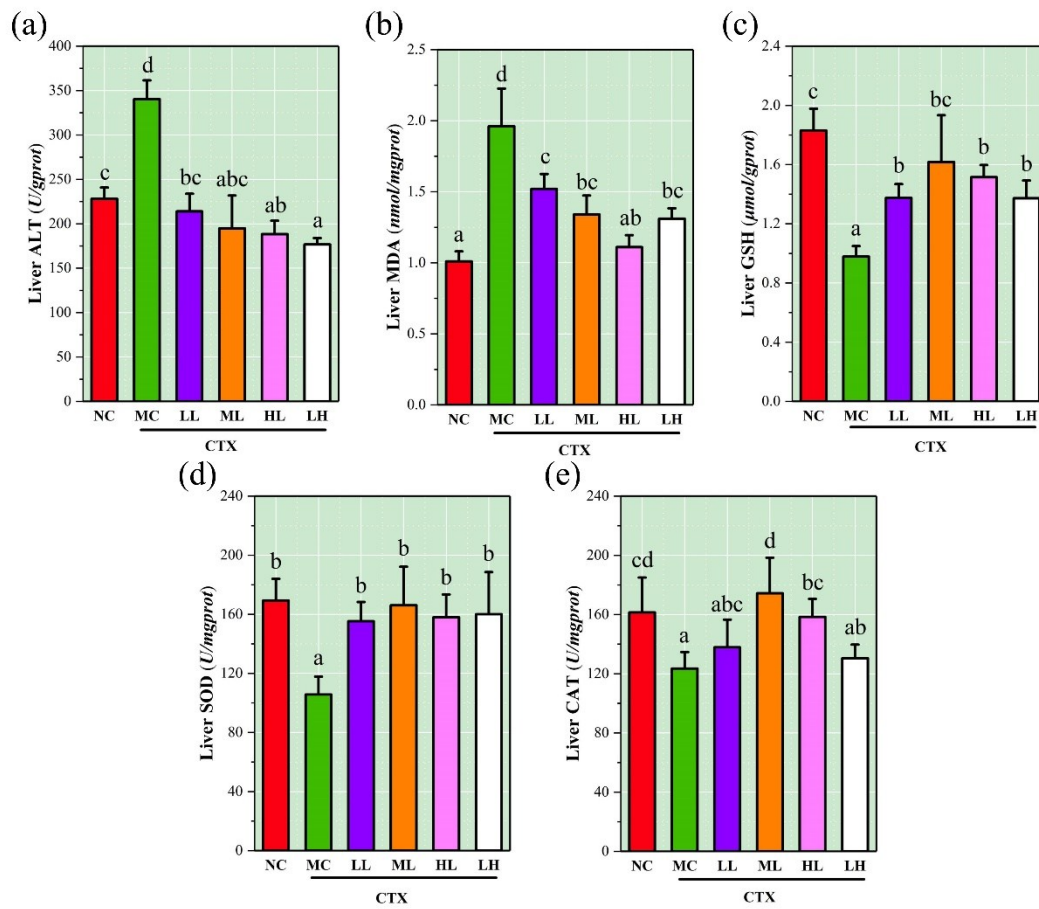


Fig. S2. Effects of LBPS administration on liver parameters including ALT (a), MDA (b), GSH (c), SOD (d), CAT (e). The different letters represent significant differences between different groups ($p < 0.05$).

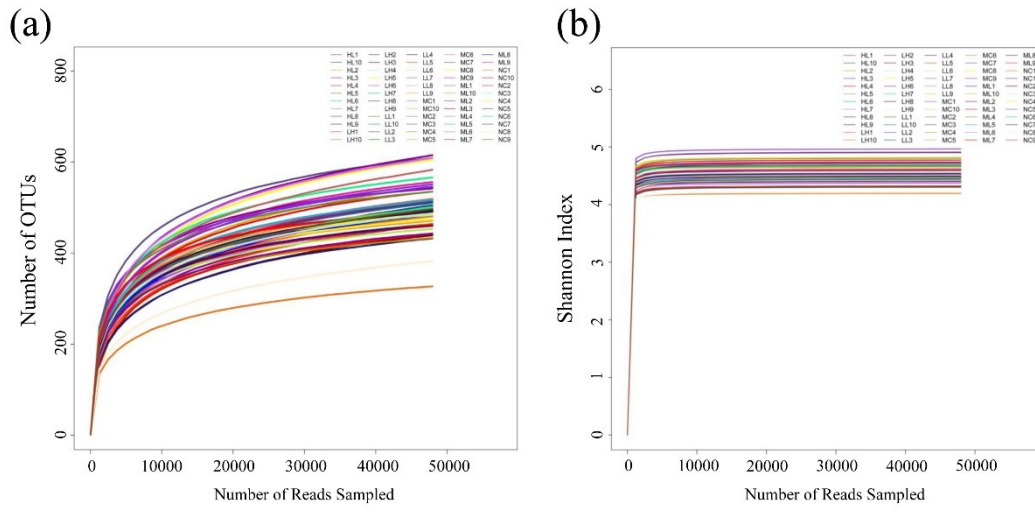


Fig. S3. Alpha diversity indexes of microbiota in different groups. Observed species (a), shannon index (b) of fecal samples from NC, MC, LL, ML, HL and LH groups.

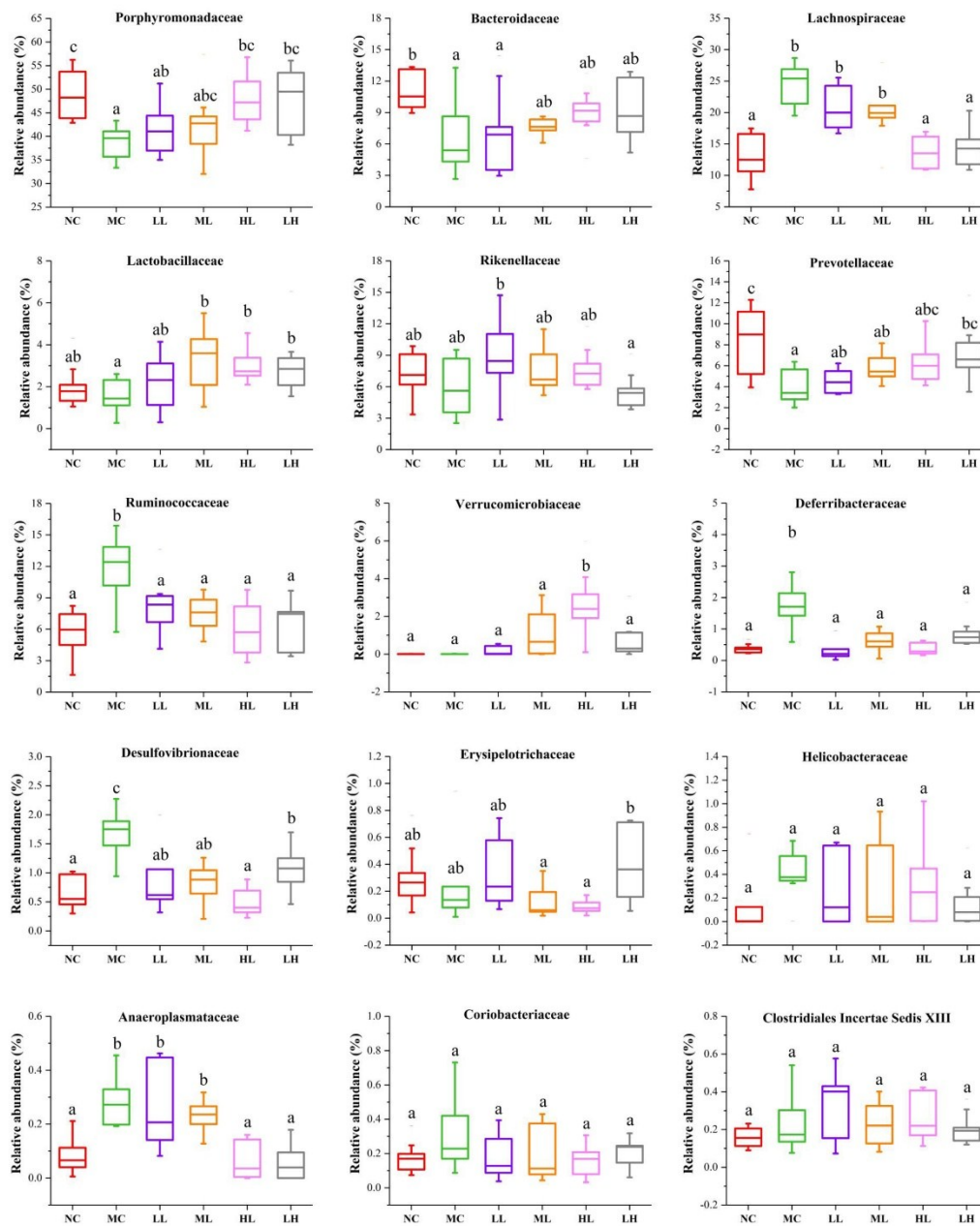


Fig. S4. Comparative analyses of 15 gut microbiota with most relative abundances at the family level. One-way ANOVA procedure followed by Tukey test was used to evaluate the statistical significance. The different letters represent significant differences between different groups ($p < 0.05$).