Electronic Supplementary Information

Abbreviations

IBD   Inflammatory bowel disease
UC    Ulcerative colitis
CD    Crohn disease
cATFP Crude Allium tenuissimum L. flower polysaccharide
KBr   Potassium bromide
TFA   Trifluoroacetic acid
Fuc   Fucose
Rha   Rhamnose
Ara   Arabinose
Gal   Galactose
Glc   Glucose
Xyl   Xylose
Man   Mannose
GalA  Galacturonic acid
GlcA  Glucuronic acid
DSS   Dextran sulfate sodium
SASP  Sulfasalazine
DAI   Disease activity index
SOD   Super oxide dismutase
CAT   Catalase
GSH-PX Glutathione peroxidase
MDA   Malondialdehyde
MPO   Myeloperoxidase
TNF-α Tumor necrosis factor-alpha
IL-6   Interleukin-6
IL-1β Interleukin-1beta
IL-10  Interleukin-10
TLR   Toll-like receptor
MyD88 Myeloid differentiation factor 88
NF-κB Nuclear factor-kappa B
IκBα   Inhibitor kappa B alpha
GAPDH Glyceraldehyde-3-phosphate dehydrogenase
**Highlights**

- ATFP is characterized as an acidic polysaccharide composed mainly of Gal, Xyl and Ara.
- ATFP reduces oxidative stress state and regulates inflammatory cytokine levels in colitis mice.
- ATFP inhibits the overexpression of TLR4/MyD88/NF-κB signaling pathway.
- ATFP positively regulates gut microbiota.
- ATFP increases the abundance of bacteria that produce short chain fatty acids.
<table>
<thead>
<tr>
<th>Gene name</th>
<th>Forward (5’-3’)</th>
<th>Reverse (3’-5’)</th>
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<tr>
<td>GAPDH</td>
<td>5’-GGTTGTCTCTGCGACTTCA-3’</td>
<td>5’-TGGTCCAGGGTTTCTTACTCC-3’</td>
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<td>TLR4</td>
<td>5’-TGCTGGTTTACACGTCCAT-3’</td>
<td>5’-TGCAGAAACATTGGCCAAGC-3’</td>
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<td>MyD88</td>
<td>5’-ACTGGCCTGAGCAACTAGGA-3’</td>
<td>5’-CTGGCCACTACCTGAGCAA-3’</td>
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<td>NF-κB p65</td>
<td>5’-CACCCGGATGTGAAGAAGCG-3’</td>
<td>5’-AAGTTGATGGTGCTGAGGGA-3’</td>
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<td>IκBα</td>
<td>5’-GAGGCCACGCTCGACATT-3’</td>
<td>5’-CAGCGGAATCACCCCAGTAA-3’</td>
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Fig. 1 Effects of ATFP on body weight and diversity of gut microbiota in mice. (A) Changes relative to the initial body weight of the mice. (B) Rarefaction curves. (C) Shannon curves. (D) Species accumulation curve at genus level. The experimental data were obtained from five mice in each group.
Fig. 2 The LEfSe analysis of cladistic evolution at phylum to genus level. Different colors represent different groups, and nodes of different colors represent the marker species in each group.