Supporting information

The protective mechanism of *Lyophyllum decastes* fruiting body polysaccharide on acute liver injury through activation of the Nrf2 signaling pathway

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Table 1 Primers for qPCR

Primer name	Primer sequence	Primer name	Primer sequence
GAPDH antisense	F-AACGACCCCTTCATTGAC	NF-κβ	F-GATTTCGTTTCCGTTATGT
GAPDH sense	R-TCCACGACATACTCAGCAC	NF-κβ	R-TTTGCTGGTCCCACATAG
Nrf2 antisense	F-TCTCCTCGCTGGAAAAAGAA	TLR4	F-GTGGAAGTTGAACGAATGGA
Nrf2 sense	R-AATGTGCTGGCTGTGCTTTA	TLR4	R-TGGATGATGTTGGCAGCA
CuZn-SOD antisense	F-AAGGCCGTGTGCGTGCTGAA	TNF-α	F-CAGGCGGTGCCTATGTCTC
CuZn-SOD sense	R-CAGGTCTCCAACATGCCTCT	TNF-α	R-CGATCACCCCGAAGTTCAGTAG
HO-1	F-CAGAAGAGGCTAAGACCGCCTT	IL-6	F-TGGAGTCACAGAAGGAGTGGCTAAG
HO-1	R-TCTGGTCTTTGTGTTCCTCTGTCA	IL-6	R-TCTGACCACAGTGAGGAATGTCCAC
Keap-1Upstream	F-GTGCTGCATGTGATGAACGG		
Keap-1Downstream	R-AAGAACTCCTCCTCCCCGAA		

Table2 Effects of LDFP on mouse body weight(g)

Treatment group	First day weight	Third day weight	Fifth day weight	Seventh day weight
Control	27. 443±1. 200	27. 417±1. 050	26. 21±2. 246	25. 59±2. 244
Model	25. 976±1. 794	25. 654±1. 886	24. 98±1. 280	26. 345±1. 602
L-LDFP	27. 662±0. 814	27. 956±0. 681	27. 558±1. 071	27. 257±0. 928
M-LDFP	28. 116±0. 555	26. 943±0. 994	26. 805±0. 952	27. 99±0. 693
H-LDFP	26. 206±1. 115	25. 84±0. 949	24. 853±0. 781	25. 3±1. 700
Positive	26. 564±1. 504	25. 563±2. 081	25. 963±1. 652	26. 123±2. 240

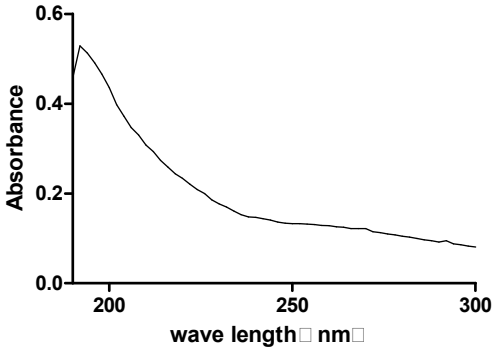

Fig.1 UV-Vis absorption spectrum of LDFP

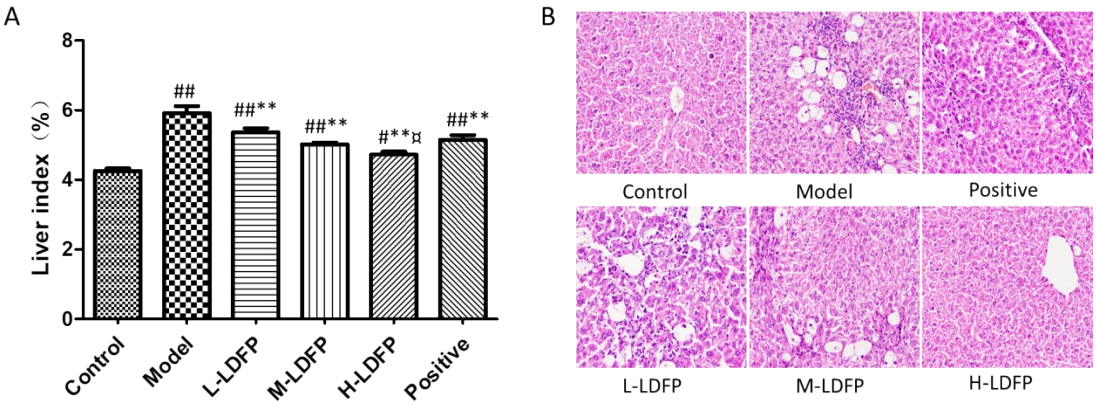

Fig. 2(A) Effect of LDFP on liver index of mice, compared with blank group #: P<0. 05; # #: P < 0. 01; Compared with model group * P<0. 05; ** P < 0. 01; Compared with the positive group ¤ P<0. 05; ¤¤ P < 0. 01. (B): HE staining of liver section

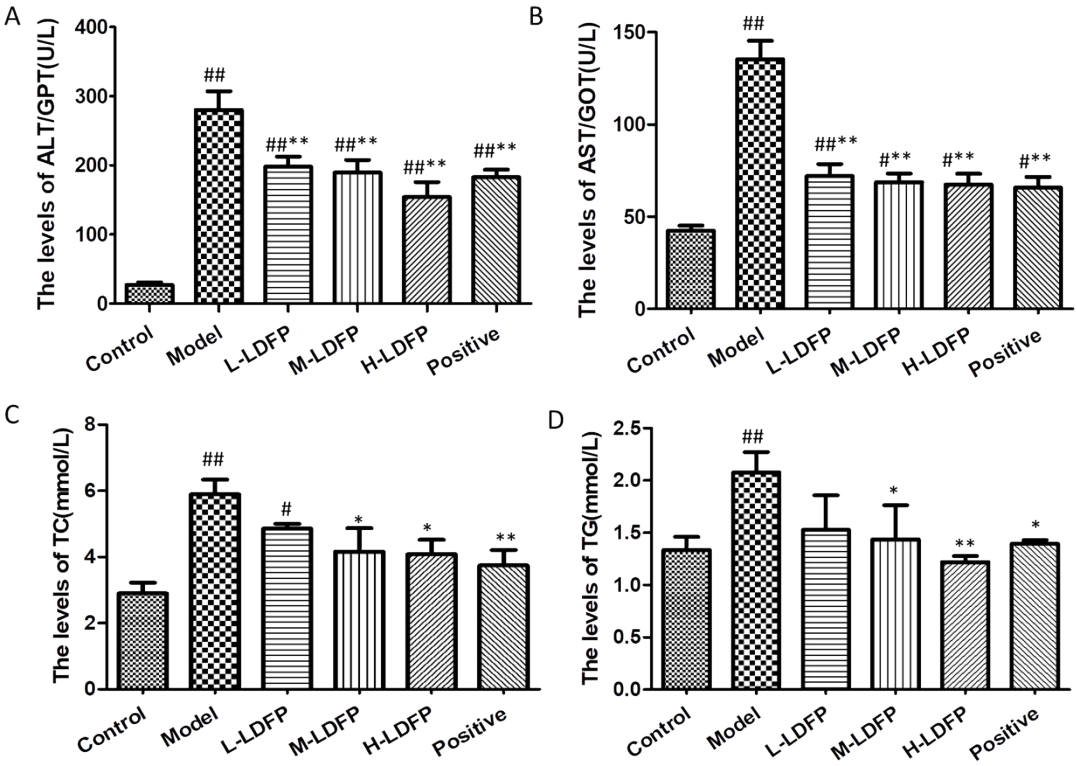

Fig. 3 Effects of LDFP on the contents of ALT, AST, TC and TG in serum of mice. A: ALT; B: AST; C: TC; D: TG. Compared with blank group #P<0. 05; ## P < 0. 01; Compared with model group *P<0. 05; ** P < 0. 01

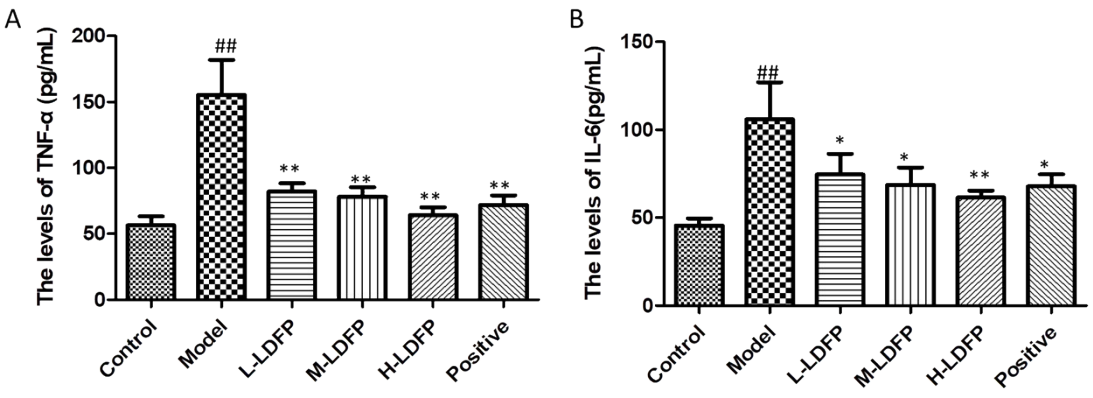

Fig. 4 Effects of LDFP on the contents of inflammatory cytokines. TNF-α and IL-6 in serum of mice A: TNF-α; B: IL - 6. Compared with blank group #P<0. 05; ## P < 0. 01; Compared with model group *P<0. 05; ** P < 0. 01

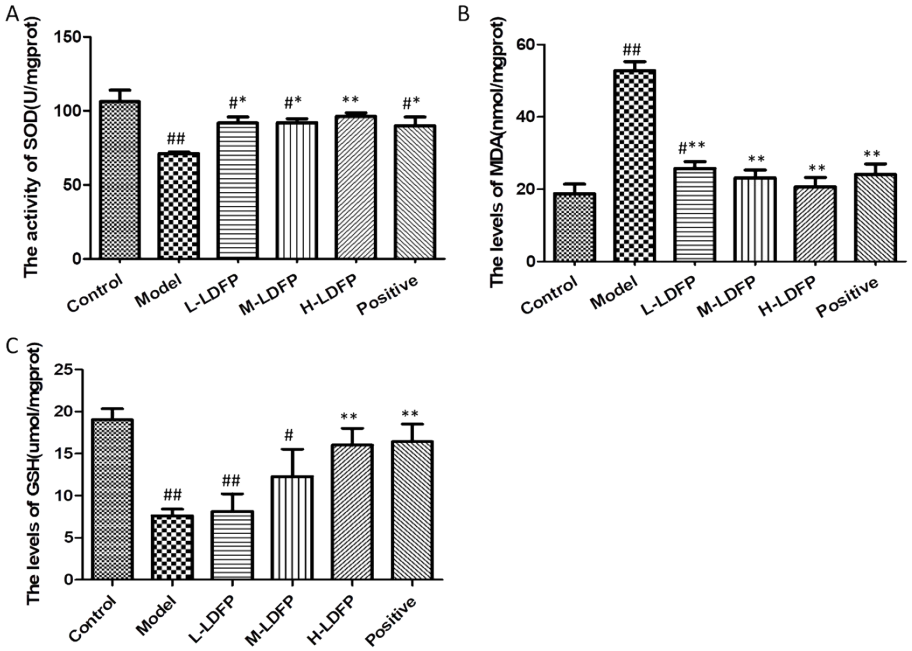

Fig. 5 Effects of LDFP on the activities of SOD, MDA and GSH enzymes in the liver of mice. A: SOD; B: MDA; C: GSH. Compared with blank group #P<0. 05; ## P < 0. 01; Compared with model group *P<0. 05; ** P < 0. 01

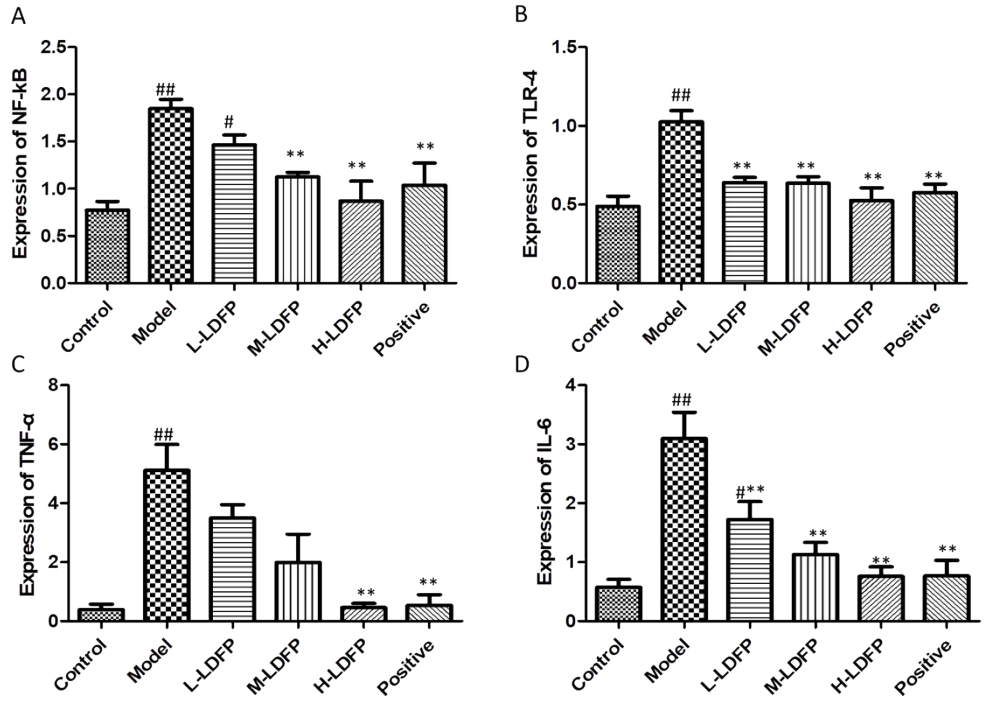

Fig. 6 Gene expression levels of TLR-4 and Nrf2 pathways. A: NF-κB; B: TLR-4; C: TNF-α; D: IL - 6; E: Nrf2; F: Keap1; G: HO-1; H: CuZn-SOD. Compared with blank group #P<0. 05; ## P < 0. 01; Compared with model group *P<0. 05; ** P < 0. 01

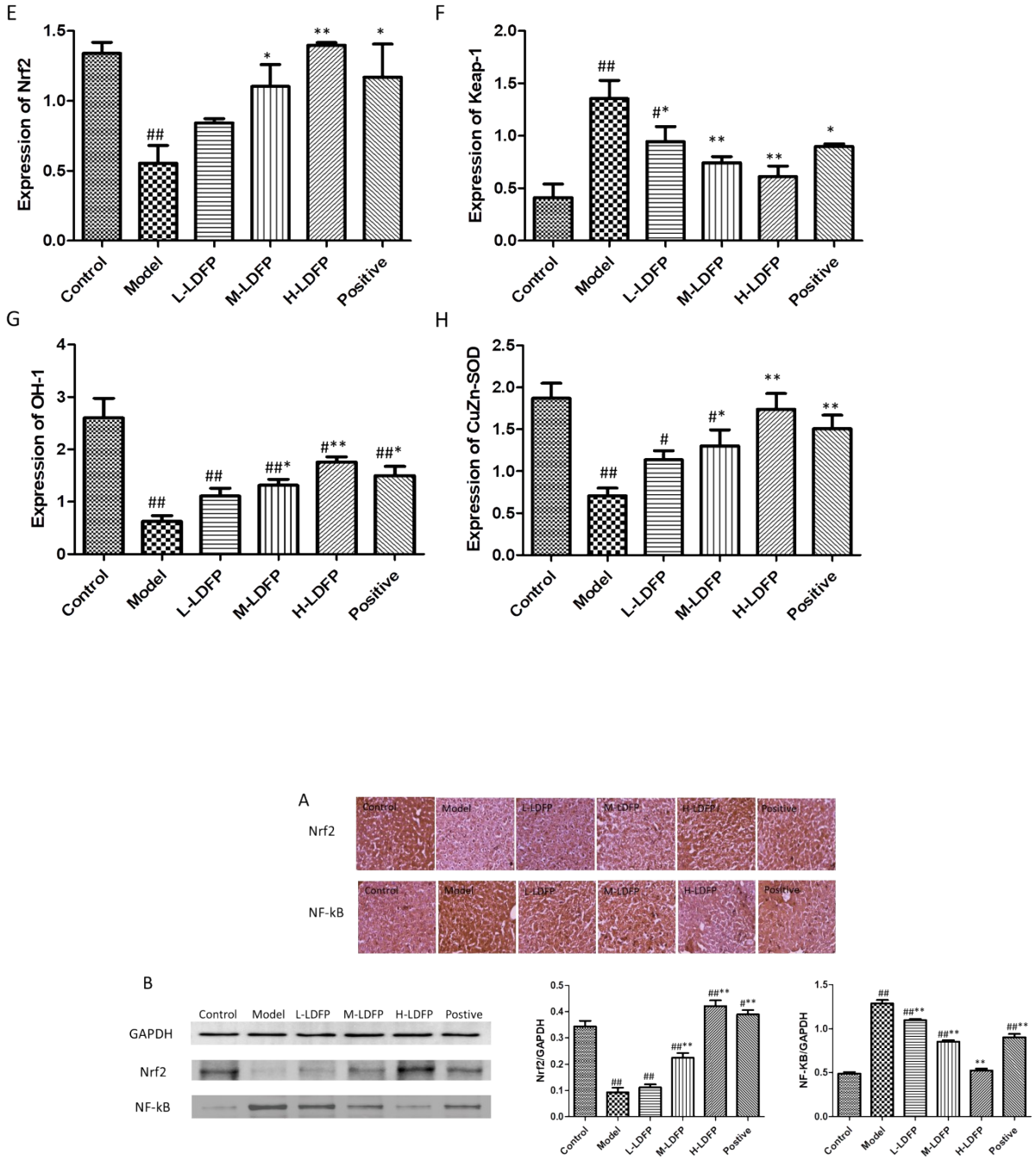

Fig. 7 Effect of LDFP on the expression of Nrf2 and NF-κB by and IHC staining and Western blot. Compared with blank group #P<0. 05; ## P < 0. 01; Compared with model group *P<0. 05; ** P < 0. 01

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Table3 Monosaccharide composition and content of *Lyophyllum decastes* fruiting body polysaccharide (μg/mg)

Monose	Fuc	D-GalN	Rha	Ara	GluN	Gal	Glc	Xyl	Man	Rib	Gal-UA	Gul-UA	Glc-UA
μg/mg	24.663	0.646	0.703	1.215	7.550	122.661	302.928	9.153	58.665	5.397	1.549	0.848	13.922

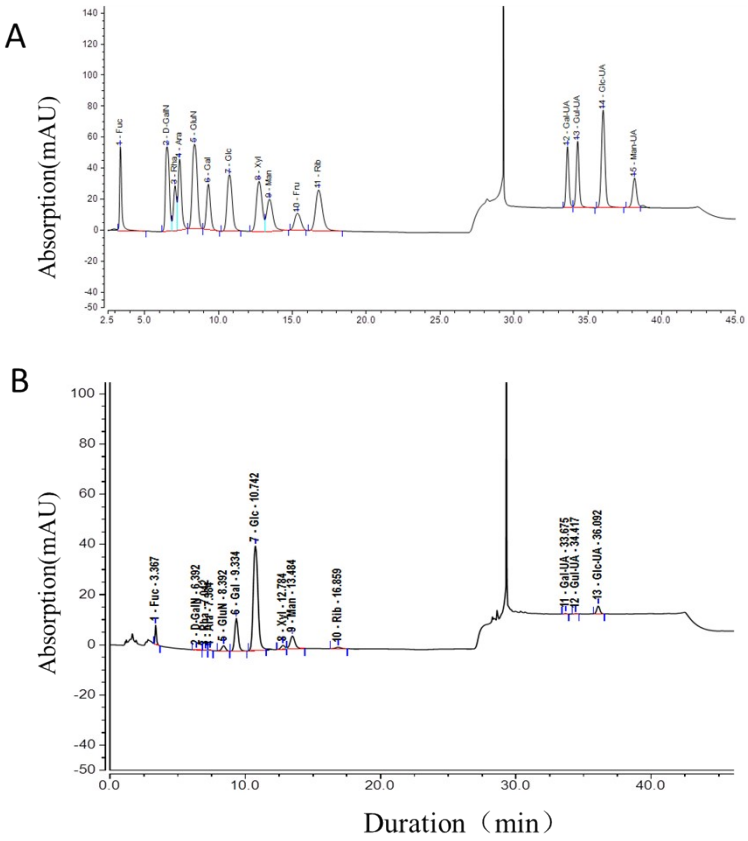

Fig. 8 (A) HPLC separation of Standard sample. (B) HPLC chromatograms of monosaccharides form *Lyophyllum decastes* fruiting body polysaccharide. 1: Fucose; 2: D-Glucosamine hydrochloride; 3: Rhamnose; 4: Arabinose, Glucosamine; 5:Galactose; 6:Glucose; 7: Xylose; 8: Mannose; 9: Fructose; 10: Ribose; 11: Galacturonic Acid; 12: Guluronic Acid; 13: Glucuronic Acid. The abscissa is the retention time of detection (Time, min), and the ordinate is the response value of ion detection (Response, nC).