Probioway®

H&H和合 生物工程

Lactiplantibacillus plantarum N-1

- Urogenital Health
- Cardiovascular Health
- Weight Control
- Improve SCFAs Production

Basic Information

Origin: Yak cheese from the Qinghai-Tibet Plateau
Type: Probiotics, postbiotics, allergen-free
China Culture Deposit No.: CGMCC No.15463
Potency: 500 billion CFU/g

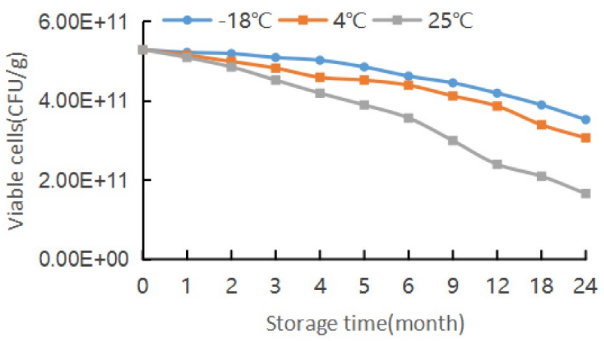
Safety Assessment

Non-GMO, no hemolytic activity
No toxic, mutagenic or genotoxic effects at all doses tested in acute and subacute oral toxicity studies.

Tolerance and Stability

N-1 exhibited good viability at low pH and could maintain stability during long-term storage.

Strain	Survival Rate(%)			
	pH 3.5	pH 2.5	0.1% oxgall	0.2% oxgall
N-1	98.0	60.6	99.1	73.9



Great Safety
Less safety concerns

Balance Gut Microbiota
Modify composition of gut microbiota

Long-Term Efficacy
Great stability and colonization

Formulation Flexibility
Capsule, tablet, powder, gummies

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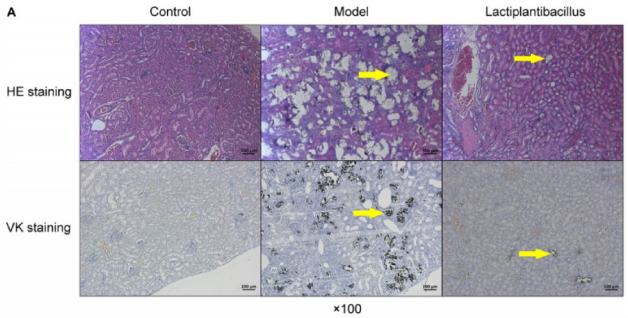
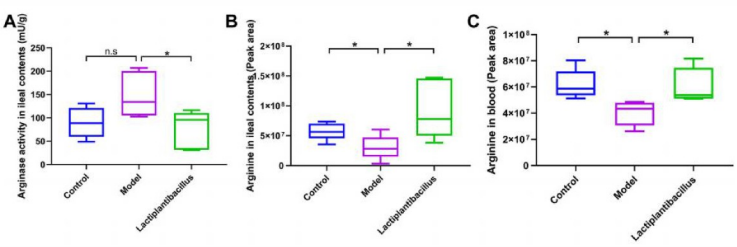
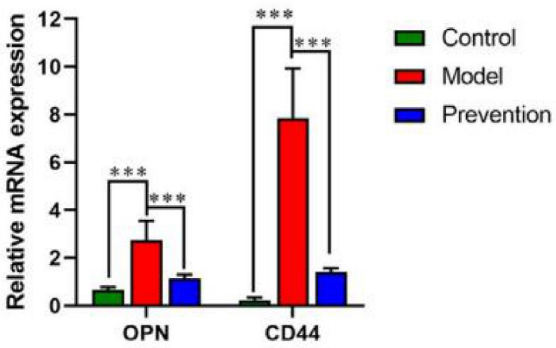
Reduce Kidney Stones

- N-1 could reduce renal calcium oxalate stones by regulating arginine metabolism.
- N-1 could reduce urinary calcium, creatinine, uric acid, oxalic acid, and BUN in hyperoxaluric rats.
- N-1 could inhibit the expression of OPN and CD44 at mRNA level in hyperoxaluric rats.



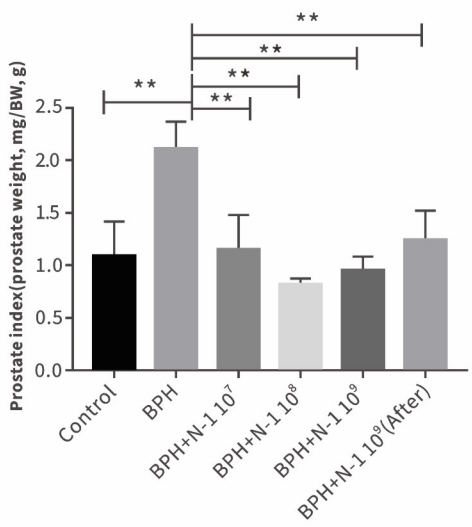


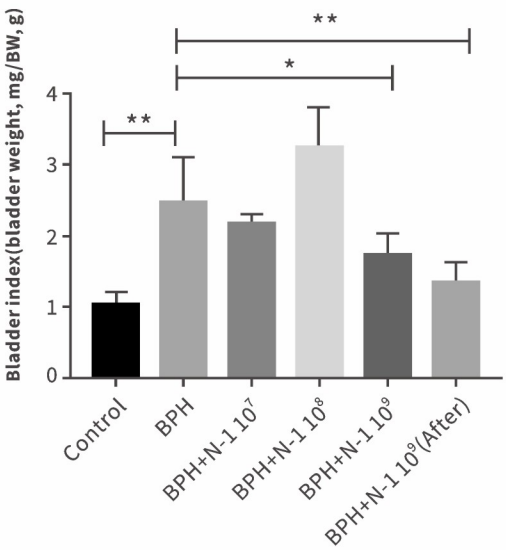
Parameter	Control ($n = 6$)	Model ($n = 6$)	Prevention ($n = 6$)
Body wt (g)	376.3 ± 3.70	381.4 ± 5.30	375.8 ± 6.40
Calcium (mol/L)	0.430 ± 0.16	0.815 ± 0.11***	0.464 ± 0.12##
Uric acid (mol/L)	8.857 ± 11.02	163.9 ± 61.95***	84.36 ± 46.87##
Oxalic acid (mg/L)	51.99 ± 5.62	129.3 ± 6.71***	100.49 ± 11.77##
Creatinine (μmol/L)	1286 ± 561.2	4464 ± 1640***	1671 ± 853.8###
BUN (mg/dl)	356.2 ± 145.3	764.3 ± 170.9***	430.8 ± 154.9##



Improve BPH

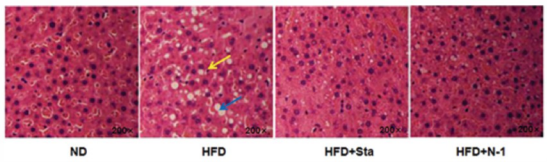
- N-1 could improve benign prostate hyperplasia by preventing bladder outlet obstruction





Cardiovascular Health

- N-1 could reduce the total cholesterol and low-density lipoprotein cholesterol levels in serum and TC in liver.
- N-1 could improve pathological abnormalities in rats with hypercholesterolemia.



Group	Serum			Liver		
	TC (mmol/L)	TG (mmol/L)	LDL-C (mmol/L)	HDL-C (mmol/L)	TC (mmol/g)	TG (mmol/g)
HFD	2.58 ± 0.13^{a}	1.14 ± 0.22^{a}	1.72 ± 0.32^{a}	1.11 ± 0.11^{a}	0.38 ± 0.09^{a}	0.17 ± 0.02^{a}
HFD + Sta	2.22 ± 0.09^{b}	0.73 ± 0.18^{a}	1.42 ± 0.38^{b}	1.29 ± 0.13^{a}	0.28 ± 0.06^{b}	0.12 ± 0.05^{ab}
HFD + N-1	2.29 ± 0.07^{b}	0.89 ± 0.18^{a}	1.27 ± 0.37^{b}	1.40 ± 0.18^{a}	0.29 ± 0.08^{ab}	0.14 ± 0.04^{ab}
ND	1.89 ± 0.15^{c}	0.64 ± 0.15^{a}	1.30 ± 0.37^{b}	1.53 ± 0.25^{a}	0.15 ± 0.03^{c}	0.11 ± 0.03^{b}

Weight Control

- Administration of N-1 could reduce weight gain compared to the high fat diet rats.

Item	Group			
	ND	HFD	HFD + Sta	HFD + N-1
Initial body (g)	524.96 ± 26.00^{a}	509.39 ± 48.79^{a}	502.19 ± 20.20^{a}	503.55 ± 18.29^{a}
Final body weight (g)	547.90 ± 30.86^{a}	567.90 ± 49.06^{a}	541.30 ± 21.92^{a}	526.40 ± 22.94^{a}
Body weight gain (g)	28.27 ± 3.37^{ab}	49.54 ± 20.09^{a}	39.11 ± 16.13^{ab}	22.90 ± 16.51^{b}
Food intake (kcal/week)	740.3 ± 18.71^{a}	721.4 ± 30.97^{a}	703.9 ± 18.29^{a}	709.1 ± 26.66^{a}
Liver index (%)	2.77 ± 0.04^{a}	2.96 ± 0.04^{a}	2.74 ± 0.05^{a}	2.84 ± 0.06^{a}
Thymus index (%)	0.03 ± 0.00^{a}	0.03 ± 0.01^{a}	0.03 ± 0.00^{a}	0.03 ± 0.00^{a}
Spleen index (%)	0.14 ± 0.02^{a}	0.14 ± 0.01^{a}	0.14 ± 0.03^{a}	0.14 ± 0.04^{a}

Improve SCFAs Production

- Supplementation of N-1 increased the cecal levels of total SCFAs and the production of butyrate and valerate compared to the HDF-fed rats.

SCFA (mmol/g)	HFD	HFD + Sta	HFD + N-1
Acetate	15.66 ± 2.98^{a}	26.07 ± 4.4^{a}	29.98 ± 1.36^{a}
Propionate	11.89 ± 3.9^{a}	19.02 ± 2.6^{a}	17.89 ± 2.21^{a}
Isobutyrate	1.30 ± 0.38^{a}	2.03 ± 0.27^{a}	2.21 ± 0.28^{a}
Butyrate	8.37 ± 2.83^{a}	12.23 ± 1.83^{a}	18.83 ± 1.79^{b}
Isovalerate	1.60 ± 0.44^{a}	2.66 ± 0.25^{b}	2.92 ± 0.13^{ab}
Valerate	1.67 ± 0.44^{a}	2.35 ± 0.32^{b}	3.10 ± 0.14^{c}

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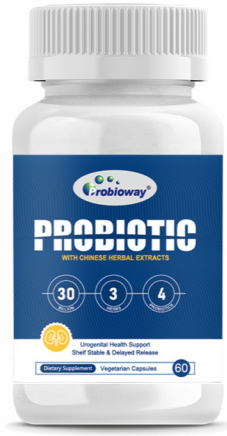
Urogenital Health Probiotics



Supplement Facts

Serving Size: 1 vegetarian capsule
Servings Per Container: 60

Amount Per Serving		%DV*
Probiotic Blend	30 Billion CFU	†
L.plantarum N-1		
L.johnsonii LBJ456®		
L.acidophilus HH-LA26		
B.longum HH-BL18		

*Daily Value(DV) not established

Other Ingredients: Fructus mume, lemon, fructooligosaccharide,isomaltooligosaccharide, dandelion, herba lophatheri.

Feature: Probioway Urogenital Health Probiotics is specially formulated to maintain kidney and urogenital health, and to improve digestive system.

Consumer Study

In the consumer study, 18 men between the age 45 to 55 years were recruited to the study and asked to consume the Urogenital Health Probiotic capsule once daily for 14 days and send the filled questionnaire. The table below demonstrates the improvement of discomfort in the participants.

Discomfort	% who felt improvement
Fatigue	72%
Back pain	50%
Urinary urgency	38%

Publications & Patents

- Liu Y,et al.(2021) *Lactiplantibacillus plantarum* Reduced Renal Calcium Oxalate Stones by Regulating Arginine Metabolism in Gut Microbiota. Front. Microbiol.12:743097.
- WeiZ, et al.Probiotic *Lactiplantibacillus plantarum* N-1 could prevent ethylene glycol-induced kidney stones by regulating gut microbiota and enhancing intestinal barrier function
- Tian L,et al. Probiotic Characteristics of *Lactiplantibacillus plantarum* N-1 and Its Cholesterol-Lowering Effect in Hypercholesterolemic Rats. Probiotics Antimicrob Proteins.2022;14(2):337-348.

- ✓ Patent No.:ZL202011503896.7
- ✓ Patent No.:ZL201810581137.9
- ✓ Patent No.:ZL202110820572.4

Wide Applications

Nutraceuticals: Capsule,chewable tablet,gummies, powder

FDA ISO 9001 ISO 22000 HACCP SYSTEM CERTILICATION FSSC 22000 HALAL KOSHER cGMP

Probioway Co., Ltd | Zhengzhou H&H Bioengineering Co., Ltd

(86)-21-61673616 http://www.probioway.com pbw@probioway.com

Building B-10D, Pudong Avenue 1089, Shanghai, China 200135

Alibaba Shop Website