Postbiotic Postbiogut

Product Specification

swiss formula

Master Core Technology in manufacturing probiotics

Food Innovation Postbiotics

swiss-formula.com email : sales@swiss-formula.eu

Table of Contents

Specification

【Name】

Product Name: Postbiogut

Type: Postbiotics Dietary Supplement

【Main Ingredients】

L.acidophilus HK-LA26, *B.lactis* HK-BA68, *L.helveticus* HK-LPH17, *L.rhamnosus*

【Health Claim】

Support gut health.

【Package Specification】

·High Potency Postbiotic Powder: 1/5/10kg per bag, 550 billion cells/g

【Storage and Shelf Life】

The High Potency Postbiotic Powder can be stored in a cool and dry place, the shelf

【Direction】

Recommended daily intake and use in foods: 20 billion cells/day or per serving.

Maximum recommended dosage: 100 billion cells/day or per serving.

【Key Features】

· **Safety of Probiotic Strains:** All strains in this formula were clearly sourced and and whole genome sequencing, free from GMOs and non-hemolytic. Acute and mice showed no adverse effects or deaths, with no significant differences in weight, biochemistry between the test and control groups. Overall, the strains are highly safe.

·**Scientific Evidence:** the product's efficacy has been validated through multiple comprehensive mechanistic verification.

【Executive Standard】

Q/ZHS0004S-2024

【Food Production License】

SC10641018200810

【Distributed by Swiss Formula 】

Mechanism of Action

According to the "2023 Insight Report on Chinese Gut Troubles and Probiotic Consumption," nearly 90% of the Chinese population suffers from gastrointestinal (GI) disorders, with an incidence rate second only to the common cold. Annually, over 1 billion cases of diarrhea or constipation are reported, and more than 30 million individuals suffer from refractory intestinal diseases. Constipation and diarrhea are the most prevalent GI conditions. Beyond digestion and absorption, intestinal function is intimately linked to the host's immune system, inflammatory responses, and detoxification processes.

The etiology of gastrointestinal diseases is typically associated with dietary habits, lifestyle patterns, stress, and genetic factors. Individuals working more than 8 hours daily account for over 70% of those with gut health issues. Notably, white-collar workers and internet industry practitioners represent a high-risk demographic, accounting for 22.4% of cases. Sedentary behavior, frequent sleep deprivation, and poor dietary habits have emerged as the primary risk factors compromising gut health.

While conventional pharmaceutical interventions are used to treat GI diseases, they carry risks of drug dependence and the development of long-term drug resistance. With the advancement of biotechnology and increasing health awareness, probiotics have emerged as an alternative therapeutic option. The mechanisms by which probiotics alleviate gastrointestinal disorders are generally summarized as follows:

①Modulation of the gut microbiota balance to maintain intestinal health;

② Competitive exclusion, wherein probiotics occupy colonization sites and compete for nutrients, thereby inhibiting the growth of pathogens;

③ Stimulation of the intestinal immune system, enhancing mucosal immunity and overall host resistance;

④Production of antimicrobial substances (e.g., organic acids, bacteriocins, and hydrogen peroxide) to suppress pathogenic growth.

Despite the advantages of probiotics over drug therapies, the requirement for cell viability limits their application versatility. The threat posed by gastric acid and bile salts remains a critical challenge for live probiotic products. Postbiotics, defined as inactivated probiotic preparations, circumvent the adverse effects of temperature, gastric acid, and bile salts while retaining functional bioactivity.

Deepening scientific research indicates that many probiotics retain their functional properties after inactivation; in some instances, specific bioactivities are even enhanced post-inactivation. Consequently, this product is designed in an inactivated (postbiotic) form. This design optimizes storage stability and facilitates incorporation into a diverse range of application scenarios, offering a practical solution for gut health and general wellness.

Efficacy Verification

1. Constipation Relief

A mouse constipation model was established using loperamide. The experiment comprised four groups: control group, model group, Postbiogut low-dose group, and Postbiogut high-dose group. During the first week, all mice underwent adaptive feeding. In the second week, mice were randomly assigned to groups (n=8 per group). For the initial four weeks, the control and model groups received daily gavage of normal saline, while the experimental groups were administered Postbiogut bacterial suspension (1×10^8 cells/mouse and 1×10^9 cells/mouse). Commencing on week 5, the control group continued normal saline gavage, whereas the model and experimental groups received daily gavage of 0.25 mL loperamide (10 mg/kg) to induce constipation. One hour after the final gavage on the last day of week 5, activated charcoal solution was administered. All mice were sacrificed 30 minutes later for dissection and analysis of relevant indicators.

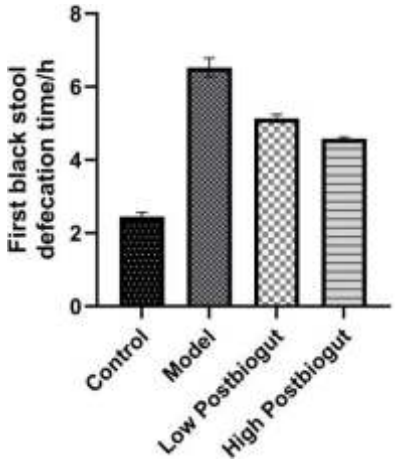

Figure 1. First black stool defecation time

As shown in the Figure 1, the model group exhibited a first black stool excretion time of 6.53 h, demonstrating a statistically significant difference compared to the control group (2.45 h), confirming successful model establishment. Both Postbiogut dosage groups significantly shortened the latency to first black stool excretion, indicating that Postbiogut effectively regulates intestinal motility.

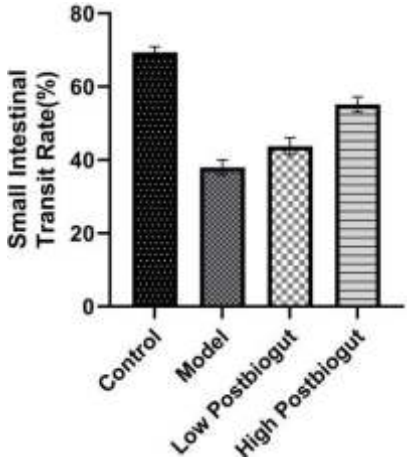

Figure 2. Small intestine transit rate

Constipated mice (Figure 2) exhibited significantly reduced gastrointestinal transit rates compared to normal controls, consistent with the aforementioned first black stool excretion results. Both dosage levels of Postbiogut ameliorated this impairment to varying degrees.

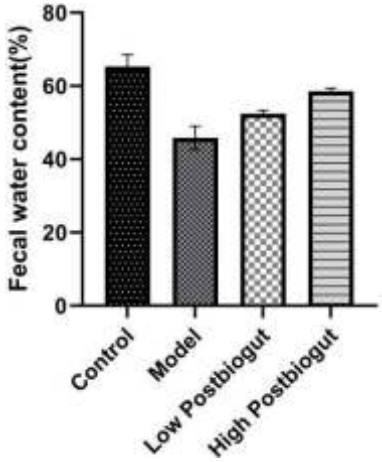

Figure 3. Fecal water content

As illustrated in the Figure 3, Postbiogut significantly increased fecal water content in constipated mice, restoring levels comparable to the normal control group. Combined with the aforementioned gastrointestinal transit rates and first black stool excretion time, these results collectively demonstrate—according to the Functional Testing and Evaluation Methods for Health Foods (2023 Revision) assessment criteria—that Postbiogut mitigates constipation symptoms.

Thermal Stability

1. Thermal Stability of Postbiogut Powder

The Postbiogut powder (5.5×10^{11}cells/g) was stored at 4°C (Refrigerated), 25°C (Room Temperature), and 40°C (Accelerated). Total cell counts were enumerated on a bi-weekly basis by flow cytometry. The product demonstrated exceptional stability across all temperature ranges. Notably, under accelerated testing conditions (40°C) for 16 weeks, the postbiotic powder maintained a high cell count retention rate with no significant degradation.

Table 1. Stability of Postbiogut powder at different temperatures (% intact cells)

Temperature	2 weeks	4 weeks	6 weeks	8 weeks	10 weeks	12 weeks	14 weeks	16 weeks
4°C	99.85	99.79	99.60	99.55	99.48	99.27	99.33	99.06
25°C	99.70	99.59	99.41	99.46	99.09	98.88	98.67	98.04
40°C	99.31	99.04	98.55	98.13	97.69	97.18	97.43	96.35

2. Thermal Stability of Postbiogut in Beverage

The Postbiogut powder (5.5×10^{11}cells/g) was formulated into a lactic acid bacteria beverage to achieve a final concentration of 1.0×10^{10} cells per 200 mL bottle. Samples were stored at 4°C, 25°C, and 40°C, with cell counts enumerated bi-weekly. Results indicate that the postbiotics maintained high stability under accelerated testing conditions (40°C) over a 16-week period, demonstrating robust performance in beverage.

Table 2. Stability of Postbiogut beverage at different temperatures (% intact cells)

Temperature	2 weeks	4 weeks	6 weeks	8 weeks	10 weeks	12 weeks	14 weeks	16 weeks
4°C	99.33	98.67	98.25	97.49	97.12	96.33	95.24	94.18
25°C	99.02	98.25	97.64	96.28	95.44	93.27	92.15	90.33
40°C	98.28	97.15	95.32	93.27	91.18	88.65	86.91	84.39

3. Thermal Stability of Postbiogut in Jelly

The Postbiogut powder (5.5×10^{11}cells/g) was formulated into jelly to achieve a final concentration of 5.0×10^{8} cells per gram. Samples were stored at 4°C, 25°C, and 40°C, with cell counts enumerated bi-weekly. Results indicate that the postbiotic maintained high stability under accelerated testing conditions (40°C) over a 16-week period, demonstrating robust performance in jelly.

Table 3. Stability of Postbiogut jelly at temperatures (% intact cells)

Temperature	2 weeks	4 weeks	6 weeks	8 weeks	10 weeks	12 weeks	14 weeks	16 weeks
4°C	99.96	99.88	99.89	99.62	99.53	99.33	99.02	98.25
25°C	99.64	99.52	98.63	98.76	98.35	98.03	97.42	96.29
40°C	99.18	98.65	98.27	97.63	97.15	96.26	95.38	94.24

4. Processing Stability of Postbiogut

The Postbiogut powder (2.0×10^{11} cells/g) was subjected to thermal treatment at 80 and 100℃ for varying durations. Subsequently, the number of intact cells was quantified. The results, as presented below, indicate that the product retained a high degree of cellular integrity under these conditions, demonstrating excellent tolerance to thermal processing.

Table 4. Stability of Postbiogut at thermal processing (% intact cells)

Temperature	5 min	10 min	15 min	20 min	25 min	30 min
80℃	99.25	98.16	96.37	95.23	94.14	92.36
100℃	87.28	83.96	81.65	75.72	69.25	64.33

References

1. H&H Internal Laboratory Study: Constipation Relief Efficacy Evaluation Report of Postbiogut.
2. H&H Internal Laboratory Study: Stability of Postbiogut in Different Food application.