

CULTURE PROFILE

Lacticaseibacillus chiayiensis

First described 2018 · NCBI TaxID 2100821 · 72 evidence sentences · 27 sources

cellular organisms; Bacteria; Bacillati; Bacillota; Bacilli; Lactobacillales; Lactobacillaceae; Lacticaseibacillus

UNREVIEWED — not verified by a microbiologist

At a glance

|   |                                      |                                                                                             |          |
|---|--------------------------------------|---------------------------------------------------------------------------------------------|----------|
| 1 | Media used                           | MRS agar/broth; Brain heart infusion (BHI); Luria-Bertani (LB)                              | low      |
| 2 | Optimum temperature for growth       | 28 °C                                                                                       | low      |
| 3 | Time required to grow                | 0-48 h                                                                                      | moderate |
| 4 | Colony morphology                    | No evidence retrieved                                                                       | none     |
| 5 | Gram character                       | Gram-positive                                                                               | moderate |
| 6 | Biochemical tests for identification | 16S rRNA gene sequencing; Whole-genome sequencing / ANI; Starch hydrolysis; Lipase; +8 more | high     |

1Media usedlow confidence

MRS agar/broth

Low · score 7.35 · 1 source

"LAB were routinely grown in the study in MRS broth at 37 °C for 24 h and reinoculated in fresh MRS broth at 37 °C."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

Brain heart infusion (BHI)

Low · score 4.04 · 1 source

"The bacterial strain was routinely grown in BHI medium (Oxoid, Basingstone, UK) supplemented with 3% ( w/v ) NaCl (Solaibao, Beijing, China) at an optimal temperature of 28 °C."

Whole-Genome Sequence Analysis, Probiotic Potential, and Safety Assessment of the Marine ... — PubMed Central (open access), 2025

Luria-Bertani (LB)

Low · score 1.86 · 2 sources

"Then, the indicated pathogens (100 µL, 1 × 10 7 CFU/mL) were mixed with 5 mL of semisolid LB agar medium and quickly poured onto the surface of solid LB agar medium."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

2Optimum temperature for growthlow confidence

28 °C

Low · score 1.4 · 1 source

"The bacterial strain was routinely grown in BHI medium (Oxoid, Basingstone, UK) supplemented with 3% ( w/v ) NaCl (Solaibao, Beijing, China) at an optimal temperature of 28 °C."

Whole-Genome Sequence Analysis, Probiotic Potential, and Safety Assessment of the Marine ... — PubMed Central (open access), 2025

37 °C

Low · score 1.38 · 1 source

"Briefly, L. chiayiensis AACE3 was inoculated in MRS broth and cultured at 37 °C for 24 h."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

Sources disagree: "28 °C" (score 1.4) versus "37 °C" (score 1.38). Both are shown; a reviewer should decide.

### 3 Time required to grow

moderate confidence

#### 0-48 h

Moderate · score 6.88 · 2 sources

"Cultures were incubated at 37 °C for 0-48 h under varying conditions-namely aerobic, anaerobic, and microaerophilic chambers (Baker Ruskin, Rotherham, UK)."

Clinical Potential of Novel Microbial Therapeutic LP51 Based on Xerosis-Microbiome Index — PubMed Central (open access), 2024

"LAB were routinely grown in the study in MRS broth at 37 °C for 24 h and reinoculated in fresh MRS broth at 37 °C."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

"Briefly, *L. chiayiensis* AACE3 was inoculated in MRS broth and cultured at 37 °C for 24 h."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

#### 14 d

Low · score 1.4 · 1 source

"The starter culture was rejuvenated in coconut water medium and incubated at 30 °C for 14 days."

Microbial diversity of bacterial cellulose starter culture revealed by 16S rRNA gene ampl... — OpenAlex, 2026

#### 21 d

Low · score 0.78 · 1 source

"The chicks were weighed after 21 days, and the PC, LC6 and LC7 groups were found to be 11.28 g, 4.56 g and 14.69 g heavier than the NC group, respectively."

Effects of Dietary Supplementation of Lacticaseibacillus Chiayiensis AACE3 on Hepatic Ant... — PubMed Central (open access), 2023

#### 3 d

Low · score 0.78 · 1 source

"Moreover, the transcription level of LOR was remarkably enhanced under treatment with 3% of LP51 culture filtrate ( Figure 3 D)."

Clinical Potential of Novel Microbial Therapeutic LP51 Based on Xerosis-Microbiome Index — PubMed Central (open access), 2024

### 4 Colony morphology

no evidence

No sentence in the retrieved literature supported this field. Nothing is asserted here.

### 5 Gram character

moderate confidence

#### Gram-positive

Moderate · score 7.98 · 2 sources

"Antibacterial activity The antibacterial activity and antimicrobial spectrum of *L. chiayiensis* AACE3 against gram-positive (2) and gram-negative (6) indicators were determined by the modified Oxford cup double-layer plate method ( Voulgari et al., 2010 )."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

"The results indicate that AACE3 has broad-spectrum antibacterial activity against common gram-positive and gram-negative pathogens."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

"Four rod-shaped, non-motile, non-spore-forming, facultative anaerobic, Gram-stain-positive lactic acid bacteria, designated as EB0058 T , SCR0080, LD0937 T and SCR0063 T , were isolated from different corn and grass silage samples."

&lt;i>Lacticaseibacillus parahuelsenbergensis</i> sp. nov., &lt;i>Lacticaseib... — Europe PMC, 2024

#### Gram-negative

Low · score 4.59 · 1 source

"Antibacterial activity The antibacterial activity and antimicrobial spectrum of *L. chiayiensis* AACE3 against gram-positive (2) and gram-negative (6) indicators were determined by the modified Oxford cup double-layer plate method ( Voulgari et al., 2010 )."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

"The results indicate that AACE3 has broad-spectrum antibacterial activity against common gram-positive and gram-negative pathogens."

Genomic and in-vitro characteristics of a novel strain Lacticaseibacillus chiayiensis AAC... — PubMed Central (open access), 2023

"Moreover, AACE3 showed robust antibacterial activity against gram-negative indicators such as *Klebsiella pneumoniae* ATCC 10031 (inhibitory zone diameter of  $19.46 \pm 0.28$  mm), *Salmonella enteritidis* CMCC (B) 50335 (inhibitory zone diameter of  $18.22 \pm 0.14$  mm) and *Escherichia coli* CMCC (B) 44102 (inhibitory zone diameter of  $17.96 \pm 0.22$  mm)."

Genomic and in-vitro characteristics of a novel strain *Lacticaseibacillus chiayiensis* AAC... — PubMed Central (open access), 2023

## 6 Biochemical tests for identification

high confidence

### • 16S rRNA gene sequencing

High · score 15.48 · 3 sources

"These strains were identified via 16S rRNA gene sequencing with 27F/1492R primer pairs."

Complete Genome Sequencing and Comparative Genomics of Three Potential Probiotic Strains,... — PubMed Central (open access), 2022

### • Whole-genome sequencing / ANI

High · score 11.03 · 3 sources

"Analysis of Whole-Genome Sequencing Results of the Strain The primary genomic characteristics of the LP51 strain are illustrated in Figure 1."

Clinical Potential of Novel Microbial Therapeutic LP51 Based on Xerosis-Microbiome Index — PubMed Central (open access), 2024

### • Starch hydrolysis

Moderate · score 8.28 · 4 sources

"Furthermore, compared to NC, *L. chiayiensis* AACE3, the activity of intestinal digestive enzymes (i.e., alpha-amylase, lipase and trypsin) was increased."

Effects of Dietary Supplementation of *Lacticaseibacillus Chiayiensis* AACE3 on Hepa... — Europe PMC, 2023

### • Lipase

Moderate · score 8.28 · 4 sources

"Furthermore, compared to NC, *L. chiayiensis* AACE3, the activity of intestinal digestive enzymes (i.e., alpha-amylase, lipase and trypsin) was increased."

Effects of Dietary Supplementation of *Lacticaseibacillus Chiayiensis* AACE3 on Hepa... — Europe PMC, 2023

### • Haemolysis pattern

Moderate · score 4.66 · 2 sources

"*L. paracasei* TISTR 2593 exhibited gamma-hemolytic activity (nonhemolysis) and demonstrated susceptibility to antibiotics, indicating that it is generally safe for consumption."

Evaluating the safety and efficacy of *Lacticaseibacillus paracasei* TISTR 2593 as a therap... — OpenAlex, 2025

### • Antibiotic susceptibility profile

Low · score 4.27 · 4 sources

"These strains also demonstrated strong bile salt hydrolase (BSH) activity, high tolerance to simulated gastrointestinal conditions, resistance to phenol, broad-spectrum antimicrobial activity against foodborne pathogens, and favorable antibiotic susceptibility profiles."

Multifunctional biotherapeutic probiotic bacteria with antioxidant capacity for cholester... — PubMed (NCBI E-utilities), 2026

### • Gelatin hydrolysis — reported negative

Low · score 2.79 · 1 source

"Regarding safety, the strain was susceptible to most clinically relevant antibiotics, such as tetracycline and ampicillin, and it did not exhibit hemolytic or gelatinase activity."

In vitro evaluation of *Zymomonas mobilis* UFPEDA 363 as a probiotic: safety profile, antag... — OpenAlex, 2026

### • Motility — reported negative

Low · score 0.93 · 1 source

"Four rod-shaped, non-motile, non-spore-forming, facultative anaerobic, Gram-stain-positive lactic acid bacteria, designated as EB0058 T, SCR0080, LD0937 T and SCR0063 T, were isolated from different corn and grass silage samples."

*Lacticaseibacillus parahuelsenbergensis* sp. nov., *Lacticaseibacillus parahuelsenbergensis* sp. nov., *Lacticaseibacillus parahuelsenbergensis* sp. nov. — Europe PMC, 2024

### • Spore formation / stain — reported negative

Low · score 0.93 · 1 source

"Four rod-shaped, non-motile, non-spore-forming, facultative anaerobic, Gram-stain-positive lactic acid bacteria, designated as EB0058 T, SCR0080, LD0937 T and SCR0063 T, were isolated from different corn and grass silage samples."

*Lacticaseibacillus parahuelsenbergensis* sp. nov., *Lacticaseibacillus parahuelsenbergensis* sp. nov., *Lacticaseibacillus parahuelsenbergensis* sp. nov. — Europe PMC, 2024

### • Aerotolerance test — reported positive

Low · score 0.93 · 1 source

"Four rod-shaped, non-motile, non-spore-forming, facultative anaerobic, Gram-stain-positive lactic acid bacteria, designated as EB0058 T, SCR0080, LD0937 T and SCR0063 T, were isolated from different corn and grass silage samples."

*Lacticaseibacillus parahuelsenbergensis* sp. nov., *Lacticaseibacillus parahuelsenbergensis* sp. nov., *Lacticaseibacillus parahuelsenbergensis* sp. nov. — Europe PMC, 2024

- Short-chain fatty acid profile (GLC)

Low · score 0.93 · 1 source

*"Probiotics produce the secondary metabolites, such as short-chain fatty acids, hydrogen peroxide, enzymes, and bacteriocins, that inhibit the proliferation of other resident gut microbes."*

Mechanisms of probiotic action in poultry gut: Colonization resistance, bioactive metabol... — Europe PMC, 2026

- Carbohydrate fermentation panel

Low · score 0.93 · 1 source

*"Functional annotations derived from COG and KEGG databases highlighted a significant abundance of genes related to metabolism, with a notable emphasis on carbohydrate utilization."*

Probiotic Potential and Safety Assessment of Lactiplantibacillus plantarum cqq-43 and Who... — OpenAlex, 2023

## 7 References

1. In vitro evaluation of Zymomonas mobilis UFPEDA 363 as a probiotic: safety profile, antagonism, and simulated gastrointestinal resistance 2026  
https://openalex.org/W7169801540 · via OpenAlex · supported: Time required to grow, Biochemical tests for identification
2. Multifunctional biotherapeutic probiotic bacteria with antioxidant capacity for cholesterol reduction, and inflammation alleviation. 2026  
PMID:42008077 · via PubMed (NCBI E-utilities) · supported: Biochemical tests for identification
3. Microbial diversity of bacterial cellulose starter culture revealed by 16S rRNA gene amplicon sequencing 2026  
https://openalex.org/W7201951902 · via OpenAlex · supported: Biochemical tests for identification, Time required to grow
4. Multifunctional biotherapeutic probiotic bacteria with antioxidant capacity for cholesterol reduction, and inflammation alleviation. 2026  
MED:42008077 doi:10.1007/s12223-026-01477-3 · via Europe PMC · supported: Biochemical tests for identification
5. Mechanisms of probiotic action in poultry gut: Colonization resistance, bioactive metabolites, quorum sensing activity, and immunomodulation. 2026  
MED:42736181 doi:10.1016/j.psj.2026.107616 · via Europe PMC · supported: Biochemical tests for identification
6. Unveiling the probiotic potential of L. rhamnosus strain 044AE by genomic and phenotypic characterization 2026  
https://openalex.org/W7151940960 · via OpenAlex · supported: Biochemical tests for identification
7. Whole-Genome Sequence Analysis, Probiotic Potential, and Safety Assessment of the Marine Bacterium Paraliobacillus zengyii CGMCC1.16464 2025  
PMC12112907 · via PubMed Central (open access) · supported: Media used, Optimum temperature for growth, Time required to grow
8. Evaluating the safety and efficacy of Lactacaseibacillus paracasei TISTR 2593 as a therapeutic probiotic for obesity prevention 2025  
https://openalex.org/W4409074428 · via OpenAlex · supported: Biochemical tests for identification
9. Probiotic Lactocaseibacillus casei NK1 Enhances Growth and Gut Microbiota in Avian Pathogenic Escherichia coli Challenged Broilers 2025  
https://openalex.org/W4409456493 · via OpenAlex · supported: Biochemical tests for identification
10. Effect of Spices on the Microbial Diversity, Physicochemical Properties and Nutritional Properties of Fermented Millet (Pennisetum glaucum) Slurry 2025  
https://openalex.org/W4409160863 · via OpenAlex · supported: Biochemical tests for identification
11. Whole-Genome Analysis and Tolerance Assessment on Bifidobacteria-like Bacteria Isolated from Breast Milk and Infant Fecal Samples in Indonesia 2025  
https://openalex.org/W4412096136 · via OpenAlex · supported: Biochemical tests for identification
12. Complete Genome Sequence Analysis and Probiotic Characterisation of Lactiplantibacillus plantarum Y300 Isolated from Traditional Free-Range Chickens 2025  
https://openalex.org/W4416916710 · via OpenAlex · supported: Biochemical tests for identification
13. Genomic insights into Lactacaseibacillus chiayiensis PD2 isolated from Southern Thai fermented fish and its potential for probiotic and antibacterial activity against foodborne pathogens 2025  
2b6af0542f284517b45798f975d4edc9 · via DOAJ · supported: Biochemical tests for identification
14. Clinical Potential of Novel Microbial Therapeutic LP51 Based on Xerosis-Microbiome Index 2024  
PMC11639849 · via PubMed Central (open access) · supported: Media used, Time required to grow, Biochemical tests for identification
15. Lactacaseibacillus parahuelsenbergensis, sp. nov., Lactacaseibacillus styriensis, sp. nov., and Lactacaseibacillus zeae, subsp. nov., isolated from different grass and corn silage. 2024  
MED:38954457 doi:10.1099/ijsem.0.006441 · via Europe PMC · supported: Gram character, Biochemical tests for identification
16. Associations between intestinal lactic acid bacteria species and feeding habits of zoo animals. 2024  
MED:39421257 doi:10.20517/mrr.2024.08 · via Europe PMC · supported: Biochemical tests for identification
17. Cultivable microbial diversity, peptide profiles, and bio-functional properties in Parmigiano Reggiano cheese. 2024  
MED:38567075 doi:10.3389/fmicb.2024.1342180 · via Europe PMC · supported: Time required to grow
18. Anti-Persister Activity of Lactacaseibacillus rhamnosus Culture Filtrates against Pseudomonas aeruginosa in Artificial Sputum Medium 2024  
doi:10.3390/ijms25137113 · via Crossref · supported: Media used

19. Genomic and in-vitro characteristics of a novel strain *Lacticaseibacillus chiayiensis* AACE3 isolated from fermented blueberry 2023  
PMC10235500 · via PubMed Central (open access) · supported: Media used, Time required to grow, Gram character, Optimum temperature for growth
20. Effects of Dietary Supplementation of *Lacticaseibacillus Chiayiensis* AACE3 on Hepatic Antioxidant Capacity, Immune Factors and Gut Microbiology in Nandan Yao Chicks. 2023  
MED:37760653 doi:10.3390/antibiotics12091356 · via Europe PMC · supported: Biochemical tests for identification
21. Probiotic Potential and Safety Assessment of *Lactiplantibacillus plantarum* ccf-43 and Whole-Genome Sequence Analysis 2023  
<https://openalex.org/W4389894774> · via OpenAlex · supported: Biochemical tests for identification
22. Effects of Dietary Supplementation of *Lacticaseibacillus Chiayiensis* AACE3 on Hepatic Antioxidant Capacity, Immune Factors and Gut Microbiology in Nandan Yao Chicks 2023  
PMC10525887 · via PubMed Central (open access) · supported: Time required to grow, Media used
23. Effects of Dietary Supplementation of *Lacticaseibacillus Chiayiensis* AACE3 on Hepatic Antioxidant Capacity, Immune Factors and Gut Microbiology in Nandan Yao Chicks 2023  
ae1254e5b1bd4b52b70914ab3f055dc8 · via DOAJ · supported: Biochemical tests for identification
24. Complete Genome Sequencing and Comparative Genomics of Three Potential Probiotic Strains, *Lacticaseibacillus cas* FBL6, *Lacticaseibacillus chiayiensis* FBL7, and *Lacticaseibacillus zeae* FBL8 2022  
PMC8777060 · via PubMed Central (open access) · supported: Media used, Time required to grow, Biochemical tests for identification
25. Characterization of Two Highly Arsenic-Resistant *Caulobacteraceae* Strains of *Brevundimonas nasdae*: Discovery of a New Arsenic Resistance Determinant 2022  
<https://openalex.org/W4280514026> · via OpenAlex · supported: Biochemical tests for identification
26. The accurate identification and quantification of six *Enterococcus* species using quantitative polymerase chain reaction based novel DNA markers 2022  
<https://openalex.org/W4285600293> · via OpenAlex · supported: Biochemical tests for identification
27. Fig. 2. Growth curve of a bacterial culture K2-2 in a liquid VD medium with sodium acetate and without an organic substrate for 2.5 days. OD - optical density culture 2022  
doi:10.17816/ecogen50901-37212 · via Crossref · supported: Time required to grow

## How these values were derived

Each candidate value was scored as the sum, over every supporting sentence, of the source tier weight multiplied by how squarely the sentence asserts the value and by a recency factor. Culture collections and nomenclatural authorities carry weight 5.0, peer-reviewed literature 3.0, preprints 1.5, and encyclopedic sources 1.0. Confidence is reported as high only where a curated source and at least two independent sources agree. Where a runner-up scored above 60 per cent of the leader, both are shown and the field is flagged as a conflict rather than resolved automatically.

This report aggregates published evidence; it does not replace Bergey's Manual, the Manual of Clinical Microbiology, or the product sheet supplied with the strain. Every field is unreviewed until a microbiologist signs it off.