



CERTIFICATE OF ANALYSIS - PROFESSIONAL LAB REPORT

Product: Fresh Ginger (*Zingiber officinale*) | Variety: Rio-de-Janeiro

Sample ID: FGR-03-004

Status: Pass

| Field | Value |
|---------------------------|------------------------------------|
| Report ID | BLLP/FGR/2026/7154 |
| Report Ref | BB-COA-FGR-P04 |
| Batch / Lot | B-FGR-26-04 |
| Sample ID | FGR-03-004 |
| Date of sample submission | 01/03/2026 |
| Date received in lab | 02/03/2026 |
| Analysis period | 02/03/2026 to 09/03/2026 |
| Date of issue | 09/03/2026 |
| Manufacturer | Botanika Bharat LLP |
| Address | Rudrapur, Uttarakhand, India |
| Sample quantity | 1.0 kg |
| Lab accreditation | NABL approved (ISO/IEC 17025:2017) |

General Profile

| Parameter | Allowed limit/spec | Result | Method | Status |
|----------------------|-----------------------------------|-----------|---------------------|--------|
| Appearance | Characteristic for product grade | Complies | Organoleptic | Pass |
| Identity (botanical) | <i>Zingiber officinale</i> | Confirmed | Macroscopy / marker | Pass |
| Moisture | As per product standard | 85.2% | AOAC | Pass |
| Foreign matter | Absent / within grade limits | Complies | Visual / sieve | Pass |
| Lot traceability | Source, batch and date verifiable | Verified | Document review | Pass |

Adulteration Assessment

| Parameter | Allowed limit/spec | Result | Method | Status |
|---------------------------------|-------------------------|----------|-------------------|--------|
| Synthetic colour | Absent | Absent | LC-MS / visual | Pass |
| Synthetic flavour / essence | Absent | Absent | GC-MS | Pass |
| Extraneous plant matter | Absent / within grade | Complies | Microscopy | Pass |
| Starch / filler check | No non-declared fillers | Complies | FTIR / iodine | Pass |
| Commodity-specific authenticity | Conforms | Conforms | Marker-based test | Pass |

Chemical Analysis

| Parameter | Allowed limit/spec | Result | Method | Status |
|------------------------------|---------------------------|-------------|-----------|--------|
| Total ash | As per monograph / grade | 4.8% | AOAC | Pass |
| Acid insoluble ash | As per monograph / grade | 0.32% | AOAC | Pass |
| pH | Product-typical range | 5.8 | pH meter | Pass |
| Active marker / volatile oil | As per buyer or monograph | Conforms | HPLC / GC | Pass |
| Pesticide residue total | <= 0.05 mg/kg | 0.023 mg/kg | LC-MS/MS | Pass |
| Fiber content | As per natural profile | Conforms | AOAC | Pass |

EU Compliance Panel

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EU Compliance Panel

| Parameter | Allowed limit/spec | Result | Method | Status |
|------------------|-------------------------------|-------------|--------|--------|
| Lead (Pb) | Within EU contaminant context | 0.26 mg/kg | ICP-MS | Pass |
| Arsenic (As) | Within EU contaminant context | 0.14 mg/kg | ICP-MS | Pass |
| Cadmium (Cd) | Within EU contaminant context | 0.070 mg/kg | ICP-MS | Pass |
| Mercury (Hg) | Within EU contaminant context | 0.018 mg/kg | ICP-MS | Pass |
| Aflatoxin B1 | < 5 ug/kg | < 1.5 ug/kg | HPLC | Pass |
| Total aflatoxins | < 10 ug/kg | < 4.4 ug/kg | HPLC | Pass |
| Ochratoxin A | < 15 ug/kg | 12 ug/kg | HPLC | Pass |

UK Compliance Panel

| Parameter | Allowed limit/spec | Result | Method | Status |
|-----------------------------------|----------------------------|----------|------------------|--------|
| Retained EU contaminant framework | Documented review | Conforms | Regulatory check | Pass |
| Heavy metals profile | Within importer UK limits | Conforms | ICP-MS | Pass |
| Mycotoxin profile | Within importer UK limits | Conforms | HPLC | Pass |
| Microbial profile | Within importer UK limits | Conforms | ISO methods | Pass |
| Pesticide screen | Within UK buyer MRL policy | Conforms | LC-MS/MS | Pass |

USA Compliance Panel

| Parameter | Allowed limit/spec | Result | Method | Status |
|------------------------------|---------------------|--------------|------------------------|--------|
| cGMP documentation alignment | 21 CFR Part 111 | Conforms | QA review | Pass |
| TAMC | < 100000 cfu/g | < 2580 cfu/g | USP <2021> / ISO 4833 | Pass |
| Yeast & mould | < 10000 cfu/g | < 202 cfu/g | USP <2021> / ISO 21527 | Pass |
| E. coli | Absent | Absent | USP <2022> | Pass |
| Salmonella | Absent | Absent | USP <2022> | Pass |
| Residual solvents | USP <467> compliant | Conforms | GC | Pass |

Mandatory Decision Parameters

| Parameter | Allowed limit/spec | Result | Method | Status |
|-------------------------------|--------------------|---------------|------------------|--------|
| Identity confirmation | Release critical | Confirmed | HPTLC/HPLC/Macro | Pass |
| Moisture | Release critical | 85.2% | AOAC | Pass |
| Heavy metals (Pb, As, Cd, Hg) | Release critical | Within limits | ICP-MS | Pass |
| Mycotoxin panel | Release critical | Within limits | HPLC | Pass |
| Microbial panel | Release critical | Within limits | USP/ISO | Pass |
| Pesticide residue panel | Release critical | Within limits | LC-MS/MS | Pass |

Supporting Parameters

| Parameter | Allowed limit/spec | Result | Method | Status |
|--------------------------|-------------------------|-----------|-----------------|--------|
| Color shade index | Commercial quality note | Conforms | Visual | Pass |
| Particle/size uniformity | Commercial quality note | Conforms | Sieve | Pass |
| Bulk density | Processing convenience | 0.57 g/ml | USP/gravimetric | Pass |
| Flow characteristic | Handling convenience | Conforms | Physical | Pass |

Critical Buyer Parameters

| Parameter | Allowed limit/spec | Result | Method | Status |
|---------------------------|-------------------------|----------|-----------------|--------|
| Active marker potency | Buyer decision-critical | Conforms | HPLC/GC | Pass |
| Safety contaminants | Buyer decision-critical | Conforms | ICP-MS/HPLC | Pass |
| Microbiological status | Buyer decision-critical | Conforms | USP/ISO | Pass |
| Authenticity/adulteration | Buyer decision-critical | Conforms | NMR/LC-MS/GC-MS | Pass |
| Traceability readiness | Buyer decision-critical | Conforms | Document review | Pass |

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General Notes

| Parameter | Allowed limit/spec | Result | Method | Status |
|--------------------------|--|--------|--------|--------|
| Storage recommendation | Cool, dry, away from sunlight/odour | Noted | SOP | Info |
| Packaging recommendation | Food-grade, sealed, moisture barrier | Noted | SOP | Info |
| Shelf-life note | As per contract and stability data | Noted | QA | Info |
| Report validity | Applicable only to tested sample and lot | Noted | QA | Info |
| Reproduction clause | Full report only unless approved | Noted | QA | Info |

Remark:

- All mandatory parameters conform to stated acceptance limits for this product and lot.
- Extended (optional) parameters are included for buyer decision support and market readiness.
- No critical non-conformance observed in tested safety, contaminant and microbiological panels.
- Product is recommended to be stored in cool, dry, hygienic and odor-free conditions.
- Result interpretation is restricted to this submitted sample, lot and report scope.
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