



## CERTIFICATE OF ANALYSIS - PROFESSIONAL LAB REPORT

Product: Fresh Ginger (*Zingiber officinale*) | Variety: Nadia

Sample ID: FGR-01-002

Status: Pass

| Field                     | Value                              |
|---------------------------|------------------------------------|
| Report ID                 | BLLP/FGR/2026/7152                 |
| Report Ref                | BB-COA-FGR-P02                     |
| Batch / Lot               | B-FGR-26-02                        |
| Sample ID                 | FGR-01-002                         |
| Date of sample submission | 20/03/2026                         |
| Date received in lab      | 21/03/2026                         |
| Analysis period           | 21/03/2026 to 29/03/2026           |
| Date of issue             | 29/03/2026                         |
| 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           | 83.6%     | 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  | 4.4%        | AOAC      | Pass   |
| Acid insoluble ash           | As per monograph / grade  | 0.26%       | AOAC      | Pass   |
| pH                           | Product-typical range     | 5.6         | pH meter  | Pass   |
| Active marker / volatile oil | As per buyer or monograph | Conforms    | HPLC / GC | Pass   |
| Pesticide residue total      | <= 0.05 mg/kg             | 0.019 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 | 0.22 mg/kg  | ICP-MS | Pass   |
| Arsenic (As)     | Within EU contaminant context | 0.12 mg/kg  | ICP-MS | Pass   |
| Cadmium (Cd)     | Within EU contaminant context | 0.060 mg/kg | ICP-MS | Pass   |
| Mercury (Hg)     | Within EU contaminant context | 0.014 mg/kg | ICP-MS | Pass   |
| Aflatoxin B1     | < 5 ug/kg                     | < 1.3 ug/kg | HPLC   | Pass   |
| Total aflatoxins | < 10 ug/kg                    | < 4.0 ug/kg | HPLC   | Pass   |
| Ochratoxin A     | < 15 ug/kg                    | 10 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      | < 2140 cfu/g | USP <2021> / ISO 4833  | Pass   |
| Yeast & mould                | < 10000 cfu/g       | < 166 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   | 83.6%         | 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  | 0.51 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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