SIDHI MARWADI PRIVATE LIMITED

Dedicated to Nature and Culture

IN-HOUSE QUALITY CONTROL & ANALYTICAL TEST REPORT

CERTIFICATE OF INTERNAL LABORATORY ANALYSIS (COA) • FSSAI & BIS COMPLIANCE

Executive Quality Statement: At Sidhi Marwadi Private Limited, purity, transparency, and traditional authenticity are the cornerstones of our edible oil heritage. Every batch of our Black Mustard (Kali Sarson) Oil is traditionally cold-pressed (Kolhu / Kachi Ghani) from machine-cleaned, sun-matured Marwadi black mustard seeds without chemical solvents, caustic refining, or synthetic Allyl Isothiocyanate (AITC) flavour enhancers, and is rigorously audited by our In-House Quality Assurance & Analytical Division prior to bottling. This report documents the comprehensive physico-chemical, natural AITC pungency, lipid authenticity, solvent-residue, contaminant, and microbiological evaluation conducted in accordance with the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011 (Regulation 2.2.1.6 – Rapeseed or Mustard Oil / Sarson Ka Tel) and BIS (IS 546) / ISO analytical protocols.

1. SAMPLE & BATCH IDENTIFICATION METADATA | Traceability & Regulatory Particulars

Product Name	Sidhi Marwadi Pure & Traditional Kachi Ghani Black Mustard (Kali Sarson) Oil	**Report Reference No.**	SMPL/QC/COA/2026/1113
Botanical / Commodity Name	Brassica nigra / Brassica juncea L. (100% Cold-Pressed Black Mustard Oil)	**Date of Sampling & Analysis**	15 November 2026
Batch / Lot Number	26/S1000/K11	**Manufacturing / Packing Date**	November 2026 (Shelf Life: 12 Months)
Testing Facility	In-House Quality Control & Analytical Lab, Sidhi Marwadi Pvt. Ltd., Jodhpur	**FSSAI License Number**	12224999000329
Sample Condition & Packaging	Intact, Sealed Food-Grade Retail Pack (1 Litre Control Sample)	**Overall Batch Verdict**	**COMPLIANT / PASSED (100% PURE)**

2. ORGANOLEPTIC & PHYSICAL AUTHENTICITY PROFILE | Macroscopic & Sensory Evaluation

Appearance & Clarity	Rich, deep golden-amber to warm reddish-gold liquid oil obtained via natural cloth/gravity filtration; completely free from suspended sediment, haziness, or separated water.
Aroma & Pungency (Jhaag / Dhasak)	Characteristic sharp, tear-inducing natural mustard pungency (Allyl Isothiocyanate ≥ 0.25%) with an earthy, nutty undertone; 100% free from synthetic chemical odour or rancidity.
Viscosity & Mouthfeel	Full-bodied, traditional Kachi Ghani viscosity retaining native MUFA/Omega-3 fatty acids and natural tocopherols (Vitamin E); zero mineral oil or artificial anti-foaming agents.

SIDHI MARWADI PRIVATE LIMITED CIN U10795RJ2025PTC102887

REGISTERED OFFICE :
C/O SIDHI MARWADI, KHASRA NO. 1242/655 KUDI DHORU, KUDI, PIPAR ROAD, JODHPUR, RAJASTHAN, INDIA, 342606
CIN: U10795RJ2025PTC102887 | GSTIN: 08ABQCS2572P1ZE | FSSAI LIC. NO.: 12224999000329
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3. COMPREHENSIVE ANALYTICAL & SAFETY TEST RESULTS | Audited 18-Point Laboratory Evaluation

S.No.	Test Parameters	Unit	Observed Test Result	Regulatory Requirement / Specification Limit (FSSAI / BIS)	Validated Method / Source Protocol	Status
1	Refractive Index at 40°C	—	1.4654	1.4646 – 1.4662	FSSAI 02.003:2021 / Refractometric Method	Complies
2	Saponification Value	mg KOH/g	172.5 mg KOH/g	168 – 177 mg KOH/g	FSSAI 02.007:2021 / Titrimetric Method	Complies
3	Iodine Value (Wijs Method)	g I_2/100 g	104 g I_2/100 g	96 – 112 g I_2/100 g	FSSAI 02.010:2021 (Wijs Method)	Complies
4	Acid Value (Free Fatty Acid Indicator)	mg KOH/g	≤ 0.5 mg KOH/g	≤ 6.0 mg KOH/g (Expressed / Unrefined Edible Mustard Oil)	FSSAI 02.009:2021 / Titrimetric Method	Superior
5	Unsaponifiable Matter	% by mass	0.6%	≤ 1.2% (Max)	FSSAI 02.008:2021 / Gravimetric Extraction	Superior
6	Natural Allyl Isothiocyanate (AITC)	% by weight	≥ 0.25%	≥ 0.20% by weight (Mandatory for 'Kachi Ghani / Cold-Pressed' Claim)	IS 548 (Part 1) / FSSAI Validated Method	Superior
7	Argemone Oil (Adulterant Screen)	Qualitative	Negative (Absent)	Negative (Must be Absent – Zero Tolerance)	FSSAI 02.032:2021	Complies
8	Polybromide Test (Linseed/Marine Oil Screen)	Qualitative	Negative (Absent)	Negative (Must be Absent)	FSSAI 02.018:2021	Complies
9	Hydrocyanic Acid (HCN / Cyanide) Test	Pass / Fail	Pass (Negative)	Passes the Test (Free from Hydrocyanic Acid)	FSSAI 02.034 / 02.035 Validated Method	Complies
10	Hexane / Extraction Solvent Residue	mg/kg	BLQ (Not Detected)	Expelled / Cold-Pressed Oil: Free from Hexane Residue (BLQ)	ISO 8892:1995 / Headspace GC Method	Superior
11	Peroxide Value (Primary Oxidation)	meq O_2/kg	≤ 2.0 meq O_2/kg (At Release)	≤ 15.0 meq O_2/kg (Virgin / Expressed Edible Oil Standard)	FSSAI 02.042:2021 (Fresh Sample Assay)	Superior

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S.No.	Test Parameters	Unit	Observed Test Result	Regulatory Requirement / Specification Limit (FSSAI / BIS)	Validated Method / Source Protocol	Status
12	**Moisture & Insoluble Impurities**	% by mass	**Moisture ≤ 0.05%; Impurities ≤ 0.05%**	Combined ≤ 0.25% (Clear, free from separated water & sediment)	FSSAI 02.001:2021 / Gravimetric Method	**Superior**
13	**Fatty-Acid Profile & Sterol/TAG Fingerprint**	% Fatty Acid / Profile	**Conforms 100% to Mustard Oil; Zero Foreign Oil Markers**	Must match declared Brassica nigra/juncea profile (Erucic/Oleic/Linoleic/ALA)	GC-FID / GC-MS Advanced Marker Profiling	**Complies**
14	**Mineral Oil, Castor Oil & Foreign Veg Oils**	Qualitative / Profile	**Negative (Absent in Profile)**	Absent / Identity Consistent with 100% Pure Mustard Oil	FSSAI 02.029; Castor Test; GC Sterol Profile	**Complies**
15	**Pesticide Residues (Multi-Residue Panel)**	mg/kg	**BLQ (Not Detected)**	Each residue ≤ Applicable FSSAI MRLs (LOQ ≤ 0.01 mg/kg)	LC-MS/MS + GC-MS/MS Multi-Residue Screen	**Complies**
16	**Heavy Metals (Pb, Cd, As, Hg)**	mg/kg	**Pb, Cd, As, Hg: BLQ**	Within FSSAI Contaminant Limits (Pb ≤0.1, Cd ≤0.05, As ≤0.1, Hg ≤0.25)	ICP-MS / ICP-OES Validated Method	**Complies**
17	**Aflatoxin B1 & Total Aflatoxins**	µg/kg	**BLQ (Not Detected)**	Total Aflatoxins ≤ 15 µg/kg; Aflatoxin B1 ≤ 10 µg/kg (FSSAI)	HPLC-FLD / LC-MS/MS	**Complies**
18	**Microbiological Profile (TPC, Yeast/Mould, E. coli, Salmonella)**	CFU/g or Presence	**Low TPC & Yeast/Mould counts; E. coli & Salmonella: Absent**	Pathogens Absent (E. coli Absent in 1 g; Salmonella Absent in 25 g)	IS / ISO / FSSAI Microbiology Manual	**Complies**

Technical Abbreviations: AITC = Allyl Isothiocyanate (Natural Pungency Compound); HCN = Hydrocyanic Acid; RI = Refractive Index; meq O_2/kg = Milliequivalents of Active Oxygen per kg; TAG = Triacylglycerol; GC-FID = Gas Chromatography with Flame Ionization Detection; BLQ = Below Limit of Quantification (Not Detected); LOQ = Limit of Quantification; MRL = Maximum Residue Limit; FSSAI = Food Safety and Standards Authority of India.

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4. SCIENTIFIC AUDIT & QUALITY INTERPRETATION | What These Analytical Numbers Mean for Consumers

- **High Natural Allyl Isothiocyanate / AITC Pungency (≥ 0.25% vs. ≥ 0.20% Kachi Ghani Benchmark):** The signature sharp aroma and tear-inducing 'dhasak' of authentic Kachi Ghani Black Mustard Oil come from natural Allyl Isothiocyanate (AITC), released enzymatically when black mustard seeds (Kali Sarson) are cold-pressed at low temperatures. High-heat commercial expelling destroys natural AITC, prompting unscrupulous brands to add synthetic chemical AITC. Sidhi Marwadi Black Mustard Oil retains ≥ 0.25% natural AITC—well above the 0.20% FSSAI Kachi Ghani requirement—proving genuine slow cold-pressing.
- **100% Free from Toxic Argemone Oil, Hydrocyanic Acid (HCN) & Polybrominated Oils:** Mustard crops are historically vulnerable to contamination by Argemone mexicana (Satyanashi) seeds, which cause epidemic dropsy, as well as adulteration with cheap linseed/marine oils (detected via the Polybromide Test) or cyanide-releasing compounds (Hydrocyanic Acid Test). Our 18-point lab audit confirms Negative Argemone Oil, Negative Polybromide Test, and a 100% Pass on the Hydrocyanic Acid safety test.
- **100% Botanical Authenticity & Zero Cheap Oil Blending (Palm Olein, Rice Bran, Soybean):** Exact centering of Refractive Index (1.4654 vs. 1.4646–1.4662), Saponification Value (172.5 mg KOH/g vs. 168–177), and Iodine Value (104 g I_2/100 g vs. 96–112), backed by GC-FID/GC-MS fatty-acid and sterol fingerprinting, confirms 100% pure Brassica nigra/juncea oil with zero foreign vegetable oils, castor oil, or mineral oil.
- **Ultra-Low Acid Value (≤ 0.5 mg KOH/g), Low Peroxide Value (≤ 2.0 meq O_2/kg) & Zero Hexane (BLQ):** Maintaining Acid Value at ≤ 0.5 mg KOH/g (against a 6.0 limit), Peroxide Value at ≤ 2.0 meq O_2/kg, and Moisture at ≤ 0.05% proves pressing from fresh, sound seeds with zero chemical Hexane solvent extraction and BLQ levels for Pesticides, Heavy Metals, and Aflatoxins.

5. QUALITY ASSURANCE DECLARATION & AUTHORIZED SIGNATORY | In-House Laboratory Verification & Transparency Notice

Regulatory & Transparency Declaration: We hereby certify that the sample described above was sampled and analyzed by the In-House Quality Control & Analytical Laboratory of Sidhi Marwadi Private Limited (Jodhpur, Rajasthan) coupled with validated instrumental test protocols. Based on the 18-point audit above, the product conforms to all mandatory quality and food safety parameters stipulated under FSSAI Regulation 2.2.1.6 (Rapeseed or Mustard Oil / Sarson Ka Tel) and IS 546. This report is published on www.sidhimarwadi.com for consumer education and batch transparency.

ANALYZED & PREPARED BY	REVIEWED & VERIFIED BY	APPROVED & AUTHORIZED BY
Quality Control Analyst In-House Analytical Lab Sidhi Marwadi Private Limited Date: 15/11/2026	Head – Quality Assurance (QA) Food Safety & Compliance Division Sidhi Marwadi Private Limited FSSAI Lic. No.: 12224999000329	For SIDHI MARWADI PRIVATE LIMITED DIRECTOR Authorized Signatory / Director Sidhi Marwadi Private Limited Jodhpur, Rajasthan - 342606 [Official Company Stamp / Seal]