

FARMING WAGON AGRO INDUSTRIES PVT. LTD.

Roorkee, Haridwar, Uttarakhand

Quality Analysis Report

adeep Kacchi Ghani Mustard Oil

This report presents the laboratory analysis of our Kacchi Ghani (wood-pressed) mustard oil tested against FSSAI standards. For each parameter, we explain what it means in simple terms, why it matters for your health, and how our oil performs.

Results at a Glance

Parameter	FSSAI Standard	Our Result	Status
Free Fatty Acid (FFA)	0.75% max	0.56%	PASS
Peroxide Value (PV)	2.0 meq/kg max	1.12 meq/kg	PASS
Allyl Isothiocyanate	0.28% min	0.29%	PASS
Moisture & Impurities (MIV)	0.25% max	0.22%	PASS
Iodine Value (IV)	96 - 112	103.87	PASS
Colour (1/4" cell)	32.0 LU max	26.0 LU	PASS
Refractive Index (RI)	1.4646 - 1.4662	1.4654	PASS
Phosphorus Content	35 ppm max	27 ppm	PASS
Soap Content	Nil	Nil	PASS
Oryzanol (RBO marker)	Nil	Nil	PASS
Taste / Smell	OK	OK	PASS
Clarity at Ambient	Clear	Clear	PASS

What Each Parameter Means

Free Fatty Acid (FFA) — 0.56% (Limit: 0.75% max)

In simple terms: Think of FFA as a freshness indicator for oil, similar to how you can tell if milk has gone off. When oil breaks down — due to heat, moisture, or poor storage — its fat molecules split apart, releasing free fatty acids. The higher the FFA, the more degraded the oil.

Why it matters for your health: High FFA oil tastes rancid, is harder to digest, and produces more harmful compounds when heated for cooking. It can cause stomach discomfort and reduces the nutritional value of your food. Our oil at 0.56% is well below the 0.75% limit, indicating it is fresh and properly processed.

Peroxide Value (PV) — 1.12 meq/kg (Limit: 2.0 max)

In simple terms: Peroxide Value measures how much the oil has been exposed to oxygen and started to oxidise. Imagine leaving a cut apple on the table — it turns brown. Something similar happens to oil internally. The lower this number, the fresher and more stable the oil.

Why it matters for your health: Oxidised oil contains free radicals — unstable molecules that damage your cells and are linked to inflammation, heart disease, and premature ageing. Cooking with highly oxidised oil amplifies these risks. Our PV of 1.12 is nearly half the maximum limit, meaning the oil is very fresh with minimal oxidation.

Allyl Isothiocyanate (AITC) — 0.29% (Limit: 0.28% min)

In simple terms: This is what gives mustard oil its characteristic sharp, pungent smell and the slight sting in your eyes. It is a naturally occurring compound unique to mustard seeds. FSSAI mandates a minimum level to ensure the oil is genuinely from mustard and not diluted with cheaper oils.

Why it matters for your health: AITC is actually beneficial — research shows it has natural antibacterial and antifungal properties. It aids digestion and is one reason mustard oil has been used in Indian kitchens for centuries. If your mustard oil does not have this pungency, it may be diluted or refined, stripping these benefits. Our level of 0.29% exceeds the minimum requirement, confirming authenticity.

Moisture & Volatile Impurities (MIV) — 0.22% (Limit: 0.25% max)

In simple terms: This measures how much water and other volatile substances are present in the oil. Oil and water do not mix well — any moisture trapped in the oil creates problems.

Why it matters for your health: Excess moisture causes oil to splutter dangerously when heated, accelerates spoilage, and encourages microbial growth (bacteria and fungi). Low MIV means the oil is properly processed, safer to cook with, and will last longer on your shelf. Our 0.22% is within safe limits.

Iodine Value (IV) — 103.87 (Range: 96-112)

In simple terms: Iodine Value measures the amount of unsaturated (good) fatty acids in the oil. Higher unsaturation generally means the oil is more nutritious. This value also acts as a fingerprint — each type of oil has a specific IV range, so it helps verify that the oil is genuinely mustard oil.

Why it matters for your health: An IV within the 96-112 range confirms the oil is authentic mustard oil with the right balance of fatty acids including Omega-3 and Omega-6. Our value of 103.87 sits comfortably in the ideal zone.

Soap Content — Nil (Required: Nil)

In simple terms: Soap content indicates whether the oil has undergone chemical refining. During industrial refining, caustic soda (lye) is used to remove free fatty acids — this process can leave behind soap residues.

Why it matters for your health: Soap traces in oil are harmful to your digestive system and indicate the oil has been chemically processed, which strips away natural nutrients and beneficial compounds. Our result of Nil confirms the oil is truly wood-pressed and unrefined — no chemicals have touched it.

Oryzanol Content — Nil (Required: Nil)

In simple terms: Oryzanol is a compound found exclusively in rice bran oil. Testing for it is a direct way to check if mustard oil has been adulterated (mixed) with cheaper rice bran oil — one of the most common forms of mustard oil fraud in India.

Why it matters for your health: While oryzanol itself is not harmful, its presence in mustard oil means you have been cheated. You are paying for mustard oil but getting a cheaper blend. Adulterated oil lacks the nutritional profile and health benefits of pure mustard oil. Our Nil result is definitive proof of zero adulteration.

Colour — 26.0 LU (Limit: 32.0 max)

In simple terms: This measures the intensity of the oil's colour using a standardised unit called Lovibond Units (LU). Pure Kacchi Ghani mustard oil has a deep golden-amber colour. Excessively dark oil may indicate over-processing or contamination.

Why it matters for your health: The colour being well within limits (26 vs 32 max) indicates proper processing. Abnormally dark oil could contain burnt residues from overheating during extraction. Our wood-pressing at low temperatures preserves the natural golden hue.

Phosphorus Content — 27 ppm (Limit: 35 ppm max)

In simple terms: Phosphorus comes from phospholipids naturally present in oil seeds. While small amounts are normal, high phosphorus levels cause the oil to become cloudy, foam during cooking, and degrade faster.

Why it matters for your health: Excess phosphorus in cooking oil can produce off-flavours and reduce the oil's shelf life. Our level of 27 ppm is well within the safe range, ensuring the oil cooks cleanly and stores well.

Refractive Index (RI) — 1.4654 (Range: 1.4646-1.4662)

In simple terms: Refractive Index measures how light bends when passing through the oil. Every type of oil bends light differently — it is like an optical fingerprint. If someone mixes a cheaper oil into mustard oil, the RI will fall outside the expected range.

Why it matters for your health: An RI of 1.4654, right in the middle of the mustard oil range, is strong scientific confirmation that this is pure, unadulterated mustard oil. No other oil has been blended in.

Fatty Acid Composition

The fatty acid profile is a detailed breakdown of the types of fats present in the oil. A healthy cooking oil should have a good balance of different fatty acids. Here is how our oil measures up:

Fatty Acid	Our Result	Why It Matters
Erucic Acid (C22:1)	50.83%	Signature fatty acid of mustard oil; gives it the distinctive flavour
Linoleic Acid / Omega-6 (C18:2)	14.11%	Essential fatty acid; supports brain function and skin health
Oleic Acid / Omega-9 (C18:1)	9.49%	Heart-healthy monounsaturated fat; also found in olive oil
Linolenic Acid / Omega-3 (C18:3)	8.69%	Anti-inflammatory; rare to find this much in a cooking oil
Eicosenoic Acid (C20:1)	4.60%	Long-chain monounsaturated fat
Palmitic Acid (C16:0)	1.89%	Common saturated fat; low level is desirable

Key highlight: Our mustard oil contains 8.69% Omega-3 (Linolenic Acid) — this is remarkably high for a cooking oil. Most common cooking oils like sunflower or soybean have negligible Omega-3. This makes Kacchi Ghani mustard oil one of the healthiest cooking oils available in India.

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