



Besan

Fresh or flawed?

Quite the staple of various snacks devoured in Indian households, from pakodas to laddoos, besan (or gram flour) is as common as it gets. Every kitchen has it. That there is protein or carbohydrate to be had from it perhaps escapes our attention or knowledge. But then, do we know that acidity beyond a limit can affect the besan's shelf life? Do we have a favourite besan type or brand, and if yes, is it good or safe enough? Does it meet the basic requirements? What do we know about their 'fineness' and purity—is there kesari dal mixed with the besan? This report is a first-hand study of nine brands available with various retailers in India and the good news is that while some brands did not really make the cut when it came to freshness, all passed the adulteration test.

A Consumer Voice Report

The test programme, carried out in an NABL-accredited laboratory, was mainly based on FSS Rules 2011, IS: 2400: 1976 (specification for besan) and Agmark. The parameters

included protein, carbohydrate and fat percentage, fineness and alcoholic acidity. The nine brands were also checked for adulteration with kesari dal, foreign starch, foreign particles and other impurities.

Besan is known by many other names – gram flour, chickpea flour, ground garbanzo beans, ground chana dal. Raw chickpeas or roasted chickpeas are ground to a fine powder to make the yellow-coloured besan powder. The standards require that besan be free of any extraneous matter, colouring matter and preservatives.



CV Recommendation | Top Performer

Rajdhani | Fortune

Value for Money

Golden Harvest

BRANDS TESTED

Rank	Total Score out of 100 (Rounded off)	Brand	Retail/MRP (Rs)	Net Weight	Best Before (Months)	Manufactured by
1	86	Rajdhani	60/75	1,000 g	4	Rajdhani Flour Mills Ltd, New Delhi
1	86	Fortune	60/80	1 kg (1 kg + 200 g free) 1.2 kg	5	Adani Wimar Ltd, Ahmedabad, Gujarat
2	85	Reliance	39/45	500 g	3	Reliance Retail Ltd, Thane, Maharashtra
2	85	Golden Harvest	49/67 (Delhi, Rajasthan); 72 (rest of India)	1,000 g	4	Future Agro Pvt. Ltd, Mumbai
3	84	Tata I-Shakti	45/45	500 g	4	Tata Chemicals Ltd, Mumbai
3	84	Shakti Bhog	41/41	500 g	4	Shakti Bhog Foods Ltd, New Delhi
4	83	Ahaar	42/42	500 g	4	Ahaar Consumer Products (P) Ltd, New Delhi
5	82	Pan	60/75	1,000 g	3	Parmanand & Sons Food Products Pvt. Ltd, New Delhi
5	82	Tirupati's	26/26	500 g	4	Tirupati Food Industries Pvt. Ltd, New Delhi

Score Rating: >90: very good*****, 71–90: good****, 51–70: average***, 30–50: poor**, up to 30: very poor*

KEY FINDINGS

- Based on the overall test findings, Rajdhani and Fortune are the toppers.
- Golden Harvest is our choice for 'value for money' on the basis of its performance and cost (Rs 49 per kg).
- Golden Harvest came out best in the sensory tests as well.
- Ahaar, Pan, Shakti Bhog and Tata I-Shakti did not pass the 'alcoholic acidity' test.
- All brands passed in the adulteration test.

Comparative Test

TEST RESULTS

Protein | Carbohydrate | Fineness | Alcoholic acidity | Fat | Energy | Total ash | Acid-insoluble ash | Kesari dal | Moisture | Foreign starch | Physical impurities | Packing and marking | Net weight

◆ Protein

Requirement: 21% min as per BIS

Protein plays an important role in cellular maintenance, growth and functioning of the human body. Besan is a relatively rich source of protein among vegetable-origin products.

- All brands met the minimum requirement.
- Ahaar scored highest in this parameter.

◆ Carbohydrate

Carbohydrate is a source of energy. Consumption of besan ensures intake of a fair quantity of carbohydrates. While the national standards have not specified any requirement in this regard, some amount of carbohydrate in besan exists inherently.

- Carbohydrate in the tested brands ranged from 57.84 per cent to 61.26 per cent.
- Tirupati's scored highest in this parameter, followed by Rajdhani and Tata I-Shakti.



◆ Fineness

Ninety-nine per cent of the material shall pass through a 500 microns IS test sieve. The fineness of besan affects the quality of the finished products prepared by using besan.

- All brands passed this test.

Brand Rajdhani commented thus on fineness:

"We intentionally don't give fine besan in our consumer pack as the semi-fine variety can be used for multiple purposes and is hence more suitable for home use. The fine variety is only good for making snack items like dhokla. For crisp pakoras and for making laddoos at home, one needs a semi-fine or even a coarse variety of besan."

◆ Alcoholic acidity

Requirement: Maximum 0.12% by mass as per BIS

Alcoholic acidity of a packaged product is related to its shelf life and freshness. If acidity is higher than the maximum limit, microbes may grow, will allow contamination of the product and reduce the shelf life of the product. The higher the alcoholic acidity, the higher is the rancidity of the product.

- Ahaar, Pan, Shakti Bhog and Tata I-Shakti did not pass this test as per Grade 1 requirement. It indicates that the product may not be fresh.

◆ Fat

Besan is not a rich source of fat but it still adds to its overall nutritional value. There is no requirement for fat content in the Indian Standard.

- Fat in the tested brands varied between 4.62 per cent and 5.26 per cent.

◆ Energy

- Fortune (4.53) scored highest on this parameter, followed by Rajdhani (4.16).

◆ Total ash

Requirement: Maximum 3% by mass as per BIS and 5% as per FSS Rules

The ash in besan is composed of non-combustible, inorganic minerals concentrated in the bran layer.

- All brands were within the specified limit.
- Rajdhani scored highest in this parameter, followed by Tata I-Shakti.

◆ Acid-insoluble ash

Requirement: Maximum 0.3% by mass as per BIS and 0.5% as per FSS Rules

- All brands were within the specified limit.
- Tata I-Shakti, Ahaar and Pan secured full score.

◆ Kesari dal

The besan shall be free of any admixture of flour of kesari dal (*Lathyrus sativus*).

- All brands passed this test.

◆ Moisture

Requirement: Maximum 11.5% by mass (as per BIS)

Higher moisture content may cause lumps and spoilage in the besan. Water content, if any, should

be removed to maintain moisture content within the prescribed limit.

- All brands were within the specified limit.
- Rajdhani scored highest in this parameter, followed by Tata I-Shakti and Shakti Bhog.

◆ Foreign starch

Requirement: Should be absent

- All brands passed this test.

Gluten

Gluten content was found between 20,413 ~g/kg and 78,533 ~g/kg, which is not a significant quantity. There is no requirement in the national standard. Besan is known to be gluten-free.

◆ Physical impurities/foreign particles (like husk)/rat hair /excreta

Requirement: Shall be absent

- All brands passed the test.

◆ Packing and marking

The material shall be in bags of suitable packaging material, such as paper, cloth, polyethylene or polyethylene-laminated jute bags.



Comparative Test

Parameter	Weightage, %	Rajdhani	Fortune	Reliance
Protein	30	23.36	23.34	23.54
Carbohydrate	10	8.36	7.97	7.97
Fineness	7	7	7	7
Alcoholic acidity	6	4.50	4.50	4.50
Fat	5	4.48	4.76	4.74
Energy	5	4.16	4.53	4.07
Total ash	4	3.56	3.12	3.04
Acid-insoluble ash	4	3.82	3.78	3.86
Kesari dal	4	4	4	4
Moisture	3	2.56	2.30	2.37
Foreign starch	3	3	3	3
Physical impurities	3	3	3	3
Packing and marking	3	3	3	3
Net weight	3	3.00	3.00	3.00

Each bag should carry these details: i) name and type of material, ii) name of manufacturer/marketer, iii) batch or code number, iv) net weight, v) date of manufacture and 'best before', vi) MRP, and vii) a green dot signifying vegetarian origin.

- All brands were packed in polyethylene in packaging size of 500/1,000 gm.
- All brands provided all required information on their packaging.

◆ Net weight

Net weight should be as per declared quantity.

- All brands except Ahaar and Pan were found to be above their declared quantity. The net weight of Ahaar and Pan was within the permitted limit.



SENSORY ATTRIBUTES

Pakodas made of besan (without adding salt and spices) were fried in the oil (for equal time) and judged by panel members on these parameters: colour and appearance, flavour/odour, taste, aftertaste feel and overall acceptability.

- Golden Harvest was found most acceptable among all the brands, followed by Fortune and Pan.
- Tirupati's scored lowest.

Brand	Total Score out of 10
Golden Harvest	8.30
Fortune	8.20
Pan	8.19
Rajdhani	7.96
Reliance	7.75
Tata I-Shakti	7.53
Ahaar	7.11
Shakti Bhog	7.00
Tirupati's	6.13

	Golden Harvest	Tata I-Shakti	Shakti Bhog	Ahaar	Pan	Tirupati's
	23.62	23.16	23.38	25.14	21.41	22.18
	8.22	8.34	8.22	7.14	7.96	8.50
	7	7	7	7	7	7
	4.20	3.60	3.60	3.30	3.90	4.50
	4.12	4.56	4.71	4.76	4.35	4.45
	3.93	4.14	4.13	3.84	4.03	4.00
	3.08	3.20	3.08	2.80	3.16	3.04
	3.76	4.00	3.89	4.00	4.00	3.80
	4	4	4	4	4	4
	2.40	2.54	2.52	2.02	2.45	2.38
	3	3	3	3	3	3
	3	3	3	3	3	3
	3	3	3	3	3	3
	3.00	3.00	3.00	2.98	2.98	3.00



Comparative Test

Nutritional Benefits

Gram flour is much more nutritious than wheat flour. It is low in saturated fat, cholesterol and sodium. Consider this: 100 grams of besan flour contains about 10 grams dietary fibre and 22 grams protein higher than usual wheat flour. It contains a high proportion of carbohydrates, up to 57 grams/100 grams. However, compared to the standard wheat flour, it is still lower in carbs. So, if you have to avoid gluten or are watching your weight, besan flour makes a healthy and versatile alternative to high-carbohydrate wheat flour.

Besan is also rich in various nutrients including magnesium, copper, folate and manganese. It also contains iron, zinc, phosphorus, calcium and potassium.

Studies in Melbourne, Australia, made a comparative study of wheat flour and chickpeas to find out their respective insulin response to middle-aged men and women who have no health complications. The results, as published in a 2004 issue of *The American Journal of Clinical Nutrition*, mentioned that a chickpea-dominated diet resulted in significant reduction in blood sugar as compared to other diets. Another study, the result of which was published in the 2007 issue of *The Journal of the American College of Nutrition*, showed that besan flour could significantly decrease the quantity of total cholesterol from body, as compared to wheat flour.



Besan for Face, Skin and Hair Care

Besan is a popular ingredient used in India for beauty purposes. It is considered to be very good for skin care, especially facial care, and is often used as a body scrub, or as part of a face pack. Besan flour face packs are traditionally used to remove dead cells from body, thereby leading to skin rejuvenation. Using besan with ingredients like milk and honey can make the skin tighter, smoother and softer. Given that it is alkalizing, you might also want to use yogurt or lemon juice with it before applying on your face or body to get the best results.

A besan hair pack used once a week can give shine and add volume to your hair. Combine with a whole egg or olive oil and make a smooth paste with water. Apply it evenly on your hair and leave it on for about 30 to 40 minutes. Wash it off with plain water. Avoid washing with shampoo on the same day.

