



**IS THE BRAND OF CHILLI
POWDER THAT YOU USE
NATURALLY RED AND
SPICY?**

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1. Are all branded chilli powders naturally red & naturally hot?
2. Is the red COLOUR due to a synthetic dye or any other additive?
3. How does the pungency of chilli powder vary from region to region?

Chilli powder is a commonly used ingredient which adds spice to otherwise bland food. It adds a lovely red colour and sharp flavour to dishes. However it should be used in moderation.

CONCERT which has undertaken Comparative Testing of products and services attempted to find out answers for the above questions by testing a few brands of chilli powders from the 4 southern states and by a user perception study.

20 different branded and unbranded chilli powders were tested in a NABL certified laboratory to ascertain the truth behind their claims. While most of the brands passed all the tests and met the standards mentioned under BIS and FSS regulations, some of them failed in some crucial parameters. Here is the complete report for you to study and make an informed choice before purchasing chilli powder next time.

What is chilli powder?

Chilli was discovered by Christopher Columbus when he landed in South America. He introduced Chilli to the rest of the world. India got its first taste of this pungent spice in 1498 through Vasco-da-Gama.

Chilli powder (also called powdered Chilli) is the dried, powdered fruit of one or more varieties of the Chilli pepper, it is used as a spice to add pungency or piquancy and flavor to dishes.

Chilli powder blend also called "curry powder" or "masala powder" in Indian trade is composed chiefly of Chilli peppers blended with other spices including cumin, coriander, garlic powder and salt. Chillies used are most commonly either red Chilli peppers or Cayenne peppers, which are both of the species Capsicum annum; many types of hot pepper may be used, including Ancho, Jalapeño, New Mexico, and Pasilla Chillies. As a result of the various potential additives, the spiciness of any given Chilli powder is variable.

Beneficial values of Chillies

Chilli has become a favorite ingredient in culinary items all over the world. Today it is unimaginable to think

of food without Chilli. It is a very important ingredient in cuisines such as Mexican, Indian, Thai and Italian.

Myths about chillies:

Unlike, the general belief that Chilli is bad for stomach, Chillies have many beneficial values. Chilli is good for digestion and has been used in Indian ayurvedic medicines to cure diseases. When eaten, you will experience sweating, runny nose, breathlessness and hiccups.

Despite this, why do people want to spice up their food with Chilli? Because Chilli is addictive. When you take Chilli, the capsaicin present in the Chilli makes the brain produce endorphins, which are natural painkillers.

Chilli Powder industry in India

Today, India has become world's largest producer and exporter of Chilli, exporting to USA, Canada, UK, Saudi Arabia, Singapore, Malaysia, Germany and many countries across the world. It contributes 25% of world's total production of Chilli. Some of the hottest Chillies are grown in India. Indian Chillies have been dominating international Chilli market for several years. Majority of Chillies grown in India is cultivated in states such

as Andhra Pradesh, Maharashtra, Karnataka, Gujarat, Tamil Nadu, Orissa and North -East India.

The Chilli powder used in India is completely different from the Mexican version of Chilli powders.

Definition of Chilli Powder as per Food Safety & Standards Regulation 2011

Chillies and capsicum (lal mirch) powder means the powder obtained by grinding clean ripe fruits or pods of capsicum annum L and capsicum frutescens L. It shall be free from mould, living and dead insects, insect fragments, rodent contamination. The powder shall be dry, free from dirt, extraneous coloring matter, flavoring matter, mineral oil and other harmful



substances. The Chilli powder may contain any edible vegetable oil to a maximum limit of 2.0 percent by weight under a label declaration for the amount and nature of oil used.

Varieties of Chilli Powder

With dozens of different Chilli pepper species in the world, it's no surprise that there are many different types of Chilli powder blends. Some Chilli powders contain only a specific species of powdered Chilli pepper, but many commercial blends contain mixtures of several peppers, along with complementary spices. Chilli powder may be classified by heat level, such as mild, medium, hot, or super hot. It may also be described by its association with a particular type of cuisine, such as Mexican or Indian Chilli powders.

Purity and quality of chilli powder

The specifications for chilli powder under FS&S Regulation 2011 are laid down based on the minimum requirement to keep the product safe for consumer use.

A. Compulsory packing for spices powders

The spice powders are used for their flavor, pungency, taste

and the colour they contribute to the dishes. To minimize the loss of the above qualities and to get the best benefits by the consumers they are specified to be sold only in sealed packets as per FSS regulations 2011.

B. Higher Moisture

Higher the moisture level of the product, it is likely to be spoiled sooner, either by the growth of mold, fungus or bacteria or by infestation with insects. Growth of fungus may have some unsafe toxins. Hence the aflatoxin level has been fixed as 30 ppb maximum.

C. Common Adulterants in Chilli powder

One of the most common problems faced by consumers is adulteration of Chilli powder with brick powder by unscrupulous traders, especially for rural trade as well as by hawkers and make shift traders in markets and shandies. Such addition could be indicated by the higher total ash content as well as ash insoluble content in dilute HCl. Such adulteration could be felt by the presence of gritty matter

during consumption of food also.

D. Addition of foreign colours

Spices being one of the costlier products, they tend to be adulterated with less costly adulterants like starches, edible flours etc. Such addition may reduce the colour and appearance of the product. To mitigate such dullness in appearance, extraneous addition of synthetic colours especially with oil soluble colours like Sudan I, II, III, IV are preferred. The diminishing appearance may also be due to grinding of Chilli powder with more stalks, calyx or even due to exposure to unfavorable climatic condition and storing the chilli pods for a longer duration to fetch a higher price. Sudan dyes are normally used to colour petroleum products and waxes.

E. Addition of Vegetable Oil

Addition of edible vegetable oils up to 2% level is permitted in chilli powder to retain its natural colour and pungency. Such addition has to be declared

on the label. Vegetable oils are sometimes replaced with mineral oil which may be **carcinogenic**.

F. Grading of Chilli powder

Chilli Powder are preferred and have become one of the very important ingredients for diverse culinary palette. Being king of spices Chilli powder is split into 2 grades under Agmark certification process. They are special grade and standard grades. Less moisture, total ash, crude fiber and higher the NVEE and capsaicin content decide the special grade quality. Higher scoville index in the chilli powder also adds a to higher grade eligibility.

What is Scoville index

Scoville index is the greatest dilution i.e. the dilution factor at which the characteristic pungent sensation from chillies is perceived under the test conditions. When tested in accordance with the method given in IS 8104, the Scoville Index in chillies, whole and ground (powdered) shall be not less than 24000.

Scoring and Rating Of Criteria And Parameters

We have chosen three Major Criteria against which the Chilli powders are rated.

They are (1) **Packaging and Labelling**, (2) **Health and Safety** and (3) **Quality**. The parameters taken into consideration under these 3 headings are listed below.

I. Packaging & labeling Parameters	
Packing	
Product name	
Mfns Name & address	
Date of Mfg.	
Best before date	
Volume in ml/gwt	
Batch Number	
Vegetarian symbol	
FSSAI number	
Consumer complaints phone number	
MRP(in Rs)	

II. Health & Safety	
Acid insoluble in dilute HCl	
Mineral Oil	
Synthetic Oil Soluble colour/added dye)	

Salmonella
B1-Aflatoxin
B2-Aflatoxin
Lead
Arsenic
Yeast and mould
III. Quality
Moisture
Crude fibre
Total Ash(on dry basis)
Non Volatile Ether Extract (on dry basis)

Brands Tested from the 4 states

Kerala

1. Kitchen Treasures
2. Nirapara (Kashmiri chilli powder)
3. Double Horse
4. Melam
5. Agro food & spices

Tamil Nadu

1. Sakthi
2. Aachi
3. MDH (DEGGI MIRCHI)
4. Raavanan
5. 777

Karnataka

1. MTR
2. Eastern
3. Golden Harvest
4. Everest Tikkhalal
5. Total Super store

Andhra Pradesh

1. Three Mango
2. Langer
3. Dharanikota

Telangana

1. Aashirvaad
2. Anand

Every test parameter under each major criterion was evaluated /tested and scored. These were added to give the scoring to the sub-criterion. Each sub-criterion was added to determine the scoring for the major Criteria.

Each criterion and parameter was rated individually on a **5-point scale**. The rating given is **1 (Poor), 2 (Fair), 3 (Good), 4 (Very Good), and 5 (Excellent)**. For any parameter, the brand which in our tests, meets the defined standards is given the rating of **Good**. When it exceeds the minimum standards substantially, it is rated **Very Good**. When it exceeds the standards significantly and shows

appreciable innovation, it is rated **Excellent**.

We have presented the results against these major criteria in each category that in our opinion is fair and without any subjective element. The user is encouraged to study these results and make his/her buying decisions based on their requirements and judgment.

User perception

Apart from all analytical parameters and specifications by different regulatory authorities, it is the user perception of consumers that prevails upon the selection of chilli powder for their use.

User perception study on the appearance, smell, taste of chilli powder was done as part of this program.

Group A

A questionnaire seeking the opinion of 200 consumers on their habit, knowledge, attitude, on the usage chilli powder was circulated among members of consumer organizations at Kanchipuram, Trichy & Erode districts of Tamil Nadu, Kerala & Andhra Pradesh. Out of 200 recipients 186 responded and shared their experiences with us.

Group B

Simultaneously samples of chilli powder(50grams) were also distributed to 20 women consumers for using them for cooking and eliciting their observations.

Based on the reply given by the members of group A, they were classified & grouped and the percentage calculated and tabulated.

1. Observation on the label of Chilli powder packets by consumers

Total:269	No.of Consumers	Percentage (%)
Price	51	19%
Manufacturing Date	73	27%
Best Before Date	105	39%
Colour	26	10%
Odour	14	05%

2. Choosing chilli powder by brand name

Total:180	No.of Consumers	Percentage (%)
Yes	135	75%
No	45	25%

3. Quantity of chilli powder purchased at a time

Total:176	No.of Consumers	Percentage (%)
50 g	41	23%
100 g	73	41%
200 g	36	21%
500 g	26	15%

4. Practice of grinding dry chillies for use

Total:181	No.of Consumers	Percentage (%)
Yes	141	78%
No	40	22%

5. Adulteration experienced

Total:184	No.of Consumers	Percentage (%)
Brick Powder	25	14%
Flours	10	05%
Artificial colour	74	40%
Sub Standard	75	41%

6. Experience of purchasing Kashmiri chillies

Total:161	No.of Consumers	Percentage (%)
Heard of it	23	14%
Usually purchase	28	17%
No idea	110	69%

7. Habit of looking at quality certificate before purchasing

Total:112	No.of Consumers	Percentage (%)
Yes	26	23%
No	38	34%
Agmark	34	30%
ISO	14	13%

8. Understanding the quality of chilli powder

Total:195	No.of Consumers	Percentage (%)
Red Colour	71	36%
Hot nature	65	33%
Mild Hot	52	27%
Do not look quality	07	04%

9. Where would you complain for quality deficiency of chilli powder

Total:184	No.of Consumers	Percentage (%)
To the Supplier	146	80%
To Husband	08	04%
To Government Officials	13	07%
No Complaining	17	09%

10. Why do you need to add chillies to food preparation?

Total:206	No.of Consumers	Percentage (%)
For taste	167	81%
For colour	15	07%
For odour	12	06%
For Medical properties	12	06%
No Idea	0	0

Packaging & Labelling:

Before picking a package of chilli powder, normally a consumer turns the packet front and back and looks for certain information - it may be the price tag, Date of Manufacturing, Date of Expiry or brand name etc.

for the label particulars revealed that almost all the packets carried all the vital information needed for the knowledge of the consumers. However the packets that did not carry the mandatory FSSAI Licence number or carrying the FSSAI Licence number not as per FSS Regulations 2011 are listed here.

Analysis of the above 20 packets

Observations:

State: Kerala

S.N	Brand Name	Food Safety & Standards Licence Number
1	Kitchen treasures	Present. But not as per Food Safety & Standards (Labelling)/Regulation 2011
2	Nirapara	Present
3	Double Horse	Present. But not as per Food Safety & Standards (Labelling)/Regulation 2011
4	Melam	Present. But not as per Food Safety & Standards (Labelling)/Regulation 2011
5	Agro Food & Spices	Present

State :Karnataka

S.N	Brand Name	Food Safety & Standards Licence Number
1	MTR	Not Present
2	Eastern	Present. But not as per Food Safety & Standards (Labelling)/Regulation 2011
3	Golden Harvest	Present. But not as per Food Safety & Standards (Labelling)/Regulation 2011
4	Everest Tikhahal	Present
5	Total Super Store	Present. But not as per Food Safety & Standards (Labelling) Regulation 2011.

Group A overall opinion about Chilli Powder

- 39% of consumers look for Best before date followed by 27% who prefer to see manufacturing date.
- 75% of people purchase chilli powder by brand name only.
- 41% purchase 100g packs whereas 23% go to for 50g pack.
- 78% have said that they used to grind dry chillies for their use. But this reply is contrary to the previous opinion, probably if they happened to purchase they would go behind brands.
- 40% have said that they have come across synthetic colour and 14% brick powder. This reply is also not acceptable as it is not easy to identify synthetic colour visually.
- 69% of respondents have not heard of Kashmiri chillies.
- 34% have accepted their ignorance about quality certificate.
- As far as chilli powder is concerned one third of them give importance to colour and others go for its hot taste.
- Except 20% the rest go and complain to shop keeper on quality deficiency.

10. Similarly 81% use chillies mainly for their taste.

Group B overall opinion after using the Chilli Powder

- 50% have opined that Chilli powder received by them was more red in appearance.
- 81% have agreed that the Chilli powder was unusually hot in taste.
- One third of them have used only 10g Chilli powder
- Two third of the respondents have used the Chilli powder for side dish preparation so that they could really feel the taste.
- 56% have said that they used the same quantity of Chilli powder as they normally use in their kitchen.
- 50% of them have mentioned the brand name they use.
- 75% are not interested to go in for Chilli powder offered to them free.
- Their unwillingness may be due to the chilli powder being too hot.
- One third of them were prepared to use homemade Chilli powder
- 63% appreciated the user perception program.

State :Tamil Nadu

S.N	Brand Name	Food Safety & Standards Licence Number
1	Sakthi	Present
2	Aachi	Not Present
3	MDH Deggi Mirchi	Present
4	Raavanan	Not Present
5	777	Not Present

State: Andhra Pradesh & Telengana

S.N	Brand Name	Food Safety & Standards Licence Number
1	Three Mango	Not Present
2	Langer	Not Present
3	Dharanikota	Not Present
4	Aashirvaad	Not Present
5	Anand	Not Present

Out of 20 samples of chilli powder only 5 brands carried the Food Safety & Standard Licence number on the label as mandated under Food Safety & Standard (Labelling) Regulation 2011. Six Brands have declared the Food Safety & Standard Licence number but the declaration was not in the prescribed format. Nine brands did not carry the Food Safety & Standard Licence number at all which could be treated as misbranded under Food Safety & Standard regulations 2011. Out of 20 samples 11 manufactures have given shelf life (best before date) period for 12 months and few of them have given 6 months & 9 months. Longer the recommended best before date means the manufacturer is confident of his process, product and packing to Retain its quality for a longer period. In such cases the consumer should select the product which has been freshly prepared.

If the manufacturer gives a shorter shelf life it may be a fresh product and the manufacturer has to increase the frequency of supply to the trader's shelf.

The brands Agro foods & spices from Kerala and Dharanikota from Andhra Pradesh have scored less than other 18 brands due to failure to mention consumer complaint number on the Label. Additionally product name was also absent in the former and FSSA Licence Number in the latter.

Health & Safety:

The following brands could not be classified as "good" for the reasons stated against them. Melam contained Aflatoxin more than the prescribed limit. This is the major default having

a negative impact on the health of the consumers. Similarly (brands) 777, Eastern and Dharanikota had higher aflatoxin ranging from 19 to 25 ppb downgrading their safety character than other brands. The maximum permissible limit of aflatoxin is 30ppb. Agro foods and 777 had also slightly higher ash insoluble in HCl higher than other though it was within permissible limit.

Quality:

On the quality front, the result on comparative study of some parameters pulls down some brands than others. Moisture, Total Ash, Non volatile other extract, crude fiber contents were slightly variant higher or lower than other brands in the following brands i.e Double horse, Melam, MTR, Eastern, Golden harvest and Three mango.

The final Rating on the above 3 criteria are attached at the ends of this report.



Brand	Rating	Packaging & Labelling	Health & Safety	Quality	MRP (in Rs)	
Karnataka	MTR	Rating	Fair	Good	Rs 25/100g	
	Eastern	Rating	Good	Fair	Rs 23/100g	
	Golden Harvest	Rating	Good	Good	Rs 22/100g	
	Everest Tikhatal	Rating	V.Good	Good	Rs 26/100g	
	Total Super store	Rating	Good	Good	Rs 50/200g	
	Andhra Pradesh	Three Mango	Rating	Fair	Good	Rs 60/200g
		Langer	Rating	Fair	Good	Rs 44/200g
		Dharanikota	Rating	Poor	Fair	Rs 44/200g
		Aashirvaad	Rating	Fair	V.Good	Rs 46/200g
		Anand	Rating	Fair	V.Good	Rs 52/200g
Telangana						

Comparative test results on Chili powder

Brand	Rating	Packaging & Labelling	Health & Safety	Quality	MRP (in Rs)	
Kerala	Chilli Powder	Rating	Good	Good	Rs 15.50/100g	
	Kitchen treasures	Rating	Good	Good	Rs 23/100g	
	Nirpara (Kashmiri chilly powder)	Rating	Fair	Good	Rs 17/100g	
	Double Horse	Rating	Good	Good	Rs 16.5/100g	
	Melam	Rating	Good	Fair	Rs 83/500g	
	Agro food & spices	Rating	Poor	Fair	Rs 24/100g	
	Tamilnadu	Sakhi	Rating	V.Good	Good	Rs 28/100g
		Aachi	Rating	Fair	Good	Rs 26/100g
		MDH (DEGCI MIRCHI)	Rating	V.Good	Good	Rs 47/100g
		Raavanan	Rating	Fair	Good	Rs 12/50g
777		Rating	Fair	Good	Rs 24/100g	



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