

**G.I. APPLICATION NUMBER – 473**

Application Date: 26-03-2014

Application is made by **Bhiwapur Mirchi Utpadak Samuha Gat**, Chikhalpar, Taluka: Bhiwapur, District: Nagpur, Maharashtra, India for Registration in Part A of the Register of **BHIWAPUR CHILLI** under Application No: 473 in respect of Chilli falling in Class – 30 is hereby advertised as accepted under Sub-section (1) of Section 13 of Geographical Indications of Goods (Registration and Protection) Act, 1999.

- A) **Name of the Applicant** : Bhiwapur Mirchi Utpadak Samuha Gat
- B) **Address** : Bhiwapur Mirchi Utpadak Samuha Gat,  
Chikhalpar, Taluka: Bhiwapur, District: Nagpur,  
Maharashtra, India
- C) **Types of Goods** : **Class 30 – Chilli**

**D) Specification:**

Bhiwapur Chilli is known for its pungency. The colour is dark red. Outer covering is thick hence less chances of breakage and long shelf life. Its length approximately measures 1.5 inch which describes its short size. The red colour of Bhiwapur chilli is darker than other Chillies like Guntur chillies. The Chilli powder gives red colour to the respective food items without any side effects like acidity. This variety of chillies requires only one irrigation cycle and less crop protection measures. Due to its pungency, less quantity of Bhiwapur red Chilli powder is sufficient in food preparations and other uses.

**E) Name of the Geographical Indication:**

**BHIWAPUR CHILLI**



**F) Description of the Goods:**

Pepper or chilli (*Capsicum annum L.*) belongs to Solanaceae family. Bhiwapur, Umred and Kuhi talukas from Nagpur district are famous for dry red chilli production in Maharashtra and India. This special type of chilli was originated from Bhiwapur hence became famous as a Bhiwapur Chilli.

Following are the main features of Bhiwapur Chilli:

- Bhiwapur Chilli is known for its pungency.

- The color is dark red.
- Outer covering is thick hence less chances of breakage and long shelf life.
- Length is approximately 1.5 inch hence short in size.
- Chilli powder does not attract insects, pests and can be stored for longer duration i.e. up to one year.

In the year 1986-87 Dr. PDKV University, Akola had tested Local Bhiwapur Chillies under summer as well as in Kharif season.

**In Kharif Season (1986-87):**

- Height of the crop: 64.67 cm
- Yield (wet red chillies): 27.46 quintal per ha
- Length: 4.2 cm
- Girth: 1.7cm
- Fresh wt of 40 fruits: 181.00 g
- Dry wt of 50 fruits: 43.2 g
- Moisture: 76 %
- Wt of seeds of 50 fruits: 18.20 g
- No of fruits per plant: 59.28
- Days required for flowering: 77

**In summer (1986-87):**

- Days required for flowering: 78 days
- Height of the crop: 36.8 cm
- No of fruits per plant: 43.8
- Yield of green chillies: 11.38 quintal per ha

**In summer (1987-89):**

- Days required for flowering: 76 days
- Height: 42.4 cm
- No of fruits per plant: 43.1
- Yield of green chillies: 11.85 quintal per ha

**G) Geographical area of Production and Map as shown in page no: 36**

In Nagpur district Umred, Bhiwapur and Kuhi talukas are famous for Bhiwapur Chilli variety. The total production of Bhiwapur Chillies is 1-5% of the total production of chillies in Nagpur. The name – ‘Bhiwapur’ is derived from the name of goddess Bhima.

Total areas of Bhiwapur, Umred and Kuhi talukas are 61,822 hectare, 89116.55 hectare, 79495.88 hectare respectively; out of which 44,234 hectare land is Agricultural land in Bhiwapur.

Nagpur district lies between 20.35 to 21.44 degree North Latitude and 78.15 to 79.40 degree East Longitude. Bhiwapur: 20°50'08"N 79°30'04"E, Umred:20.85°N 79.33°E Kuhi: 21.0108242°N 79.3524241°E

**H) Proof of Origin (Historical records):**

Over a long period of time Bhiwapur is famous for its distinct crop-‘Red chillies’. Records of Central Indian Provinces state that Bhiwapur Chilli is cultivated over

many generations in Bhiwapur, Kuhu and Umred talukas. Many farmers are cultivating Bhiwapur Chilli for more than 40-50 years. According to the information given in Nagpur Gazetteer, in 1961, about 25 red chilli brokers were in Bhiwapur market paying Rs.5 as license fee per annum (Nagpur).

The Nagpur Gazetteer (1966) also finds mention of the Bhiwapur Chilli and Bhiwapur being the largest Chilli market in the district.

#### **I) Method of Production:**

Total cultivation and processing period of Chilli is near about 240-270 days. Seeds of dried Chillies are sown in soil which is packed in small packets. Usually the seeds are sown in the month of July, which grows up to 6 inch till 1st week of August. These Small seedlings are then transplanted in a land specially prepared and nourished by using manure, cow dung and compost etc. Potash, Zink, PSB, Azetobacter, Rhizobium etc. are also added to soil for Chilli cultivation.

Crops become 15-20 inches tall till September after that within 45-50 days from transplantation the flowering period starts. 60 days after cultivation green Chillies start taking shape. Thereafter, fruits of Chillies mature and become red in color. It is kept on the plant itself until it turns red. Then farmers harvest these red Chillies before they get fully dried and this chilli is called as "toda" in local language. These Chillies are kept for sun drying and then Chilli powder is prepared from the dried red chillies.

No machinery is used while cultivation and this is the special characteristic of this chilli cultivation. Yield is relatively low as compared to the hybrid variety but market value is high because of the quality of the chilli.

A research study of adoption of recommended chilli cultivation practices was conducted in Bhiwapur region of Nagpur district. The majority of the farmers had medium level overall adoption of recommended chilli cultivation practices. The cent per cent of farmers in the area have fully adopted the recommended practice of harvesting of red chilli. In chilli nursery management majority of farmers fully adopted practices like age of seedling, type of soil, seed sowing depth and row distance, seed rate, size of seed bed and chilli varieties. In main chilli field majority of farmers fully adopted practices like time of transplanting, land preparation, intercultural operations, dipping of land preparation, intercultural operations, dipping of seedlings in chemical, spacing and doses of fertilizers.

#### **J) Uniqueness**

##### **Geographical Significance:**

##### **1. Soil**

Soil of Bhiwapur taluka has good water holding capacity, which is suitable for cultivation of Chillies. The soil is rich in the micro-nutrients. Good percent of Iron, Manganese and Copper is present in the soil which gives red colour to the Bhiwapur Chillies.

## Soil Analysis report

| Chemical  | Concentration of chemical in ppm |
|-----------|----------------------------------|
| Copper    | 0.20-1.16                        |
| Iron      | 4.50-1.34                        |
| Manganese | 2.00-5.02                        |
| Zink      | 0.65-1.23                        |

### 2. Rainfall

The average annual rainfall ranges between 1250-1350 mm. Average rainfall is 1154.62 mm. Monsoon is from June to October and the amount of rainfall is sufficient to grow chilli crop in Kharif season

### 3. Climate

Bhiwapur has tropical climate, which is hot and dry in summer. In the rainy season climate remains dry and humid. The average annual temperature in Bhiwapur is 30°C.

The hot and humid atmosphere required for chilli cultivation is there in Bhiwapur taluka. The climatic elements such as temperature, humidity, bright sunshine hours of these talukas are quite favorable for growth, development and yield of chilli. The quality of Bhiwapur Chilli leads to superior due to good climatic and soil factors.

### Uniqueness of Bhiwapur Chilli:

Chilli owes its hot sensory taste to capsaicinoids as major group of organic compounds. Major capsaicinoids present in most varieties of the chili are capsaicin (tran-8-methyl-N-vanillyl-6-nonenamide) and dihydrocapsaicin (8-methyl-N-vanillylnonanamide). Chilli pungency is measured in Scoville Heat Units (SHU).

Capsaicinoids concentration was determined for available market chilli samples along with Bhiwapur Chilli. It was observed that the Capsaicinoids concentration among the samples ranged between 0.18 to 0.82%. Samples 1, 2, 3, 4, and 15 showed higher concentrations. These varieties were typical and were obtained from nearby chilli cultivation region of Bhiwapur.

### Concentration of Capsaicinoids in Real Chilli Pepper Samples

| Samples   | Total Capsaicinoids (%) | SHU    |
|-----------|-------------------------|--------|
| Sample 1  | 0.77                    | 115733 |
| Sample 2  | 0.76                    | 117098 |
| Sample 3  | 0.78                    | 117090 |
| Sample 4  | 0.87                    | 130498 |
| Sample 5  | 0.27                    | 40500  |
| Sample 6  | 0.17                    | 25500  |
| Sample 7  | 0.18                    | 26903  |
| Sample 8  | 0.29                    | 43050  |
| Sample 9  | 0.29                    | 44640  |
| Sample 10 | 0.28                    | 42660  |
| Sample 11 | 0.35                    | 52650  |

|           |      |        |
|-----------|------|--------|
| Sample 12 | 0.37 | 56385  |
| Sample 13 | 0.36 | 53940  |
| Sample 14 | 0.49 | 74235  |
| Sample 15 | 0.82 | 124290 |

Capsaicinoid content in Bhiwapur Chilli is higher than other varieties. Colour value of Bhiwapur Chilli is more than Guntur variety. Even though Byadgy chilli is more red in colour but it does not have inherent pungency. Therefore, when Bhiwapur chillies are used in preparation of food items, it gives more colour than Guntur chillies which is more attractive to eyes and add pungent taste to the food than those of Byadgy chillies. The Chilli powder gives red colour to the respective food items without any side effects like acidity.

Size of this Chilli is small approximately 1-1.5 inch. Bhiwapur chilli is thicker than any other variety including hybrid varieties. Cover of Bhiwapur Chilli is thick hence it can be stored for longer duration and there are less chances of breakage.

Chilli powder does not attract insects, pests and can be stored for longer duration i.e. up to one year.

Comparison of most extensively used chillies in Maharashtra is given in the following table. Analysis of Scoville Heat Units (SHU) of Bhiwapur chillies, Guntur Chillies and Byadgi chillies shows that Guntur chilli is more pungent than Bhiwapur chilli because of higher SHU but colour value of Guntur chillies is less than Bhiwapur chillies. Even though Byadgy chilli is redder in colour it does not have inherent pungency. Therefore when Bhiwapur chillies are used in preparation of food items give more colour than Guntur chillies which is more attractive to eyes and add pungent taste to the food than those of Byadgy chillies.

#### **Comparison for SHU of different Chilli**

| Commodity →<br>Parameters<br>↓   | Bhiwapur Chilli | Guntur Chilli    | ByadgyChilli |
|----------------------------------|-----------------|------------------|--------------|
| <b>Scoville Heat Units (SHU)</b> | 20,000          | 35,000 to 40,000 | Nil          |
| <b>Capsaicin</b>                 | 0.12%           | 0.226%.          | 0.03%        |
| <b>ASTA colour value</b>         | 36.3            | 32.11            | 150-200      |

\*ASTA-American Spice Trade Association

## **K) Inspection Body**

The quality of Bhiwapur Chilli will be monitored by an Internal Watchdog Mechanism in order to maintain the original physical and chemical characteristics as per GI registration.

The system of internal watchdog mechanism will consist of following committee members:

- i) Representative of Producer group of Bhiwapur Chilli
- ii) Three (3) farmers from the area under cultivation
- iii) GI Experts
- iv) Agriculture Expert.

Bhiwapur Mirchi Utpadak Samuha Gat has constituted an Inspection Structure to oversee the standards and quality assurance system for inspection of every step of production of Bhiwapur Chilli and statutory compliances thereof.

This Inspection Structure consists of President / Vice-President / Secretary / Treasurer of the Applicant Organization, Farmer Members, GI Experts, and Agriculture Experts. This committee will also help to regulate the use of Geographical Indications for the welfare of local farming community. The committee will frame the terms and conditions to use brand name of Bhiwapur Chilli by any of the marketing agency. The logo of Bhiwapur Chilli GI will be used to create brand image.

The names of the members of the Inspection Structure and Internal Watchdog Mechanism are available on applicants' record and can be furnished if required.

## **L) Others**

- Medicinal value of Bhiwapur Chilli:
- Chilli has medicinal values on -
- Reduces Arthritis pain
- Zoster related pain
- Dialectic properties
- Neuropathy and headache
- Stimulation of the digestive system
- Burns the calories easily
- Vitamin A present in this Chilli reduces inflammation of lungs and emphysema caused due to cigarette smoking.
- This Chilli has Vitamin C and Vitamin A containing beta-carotenoids which are powerful antioxidants.

### **Food value of Bhiwapur Chilli:**

Chillies are excellent source of-

- Vitamin A
- Vitamin B
- Vitamin B6
- Vitamin C
- Molybdenum
- Very high Potassium

- Magnesium

**Nutritional Value of Bhiwapur Chilli: per 100 g**

- Energy: 166 Calories
- Sugar: 5.3g
- Carbohydrates: 8.8g
- Dietary fibers: 1.5g
- Fats: 0.4g
- Proteins: 1.9g
- Rich in phosphorus (3.1 mg), 480 mg calcium
- Rich in Iron, Magnesium, Potassium.

**Culinary use:**

- As one of the main Spices in Indian Food.
- Oleoresin used in beverages and imparting colour to the meat.
- Vharadi Mirchi Thecha made from Bhiwapur Chillies.

**Cosmetic Use:**

Colour (Oleoresin) is one of valuable attributes of this chilli, valued for its use in food as well as in cosmetic industries. Oleoresins (red colour) are used in lipsticks, Nail polish and other cosmetics.

