

## Some Traditional Genotypes of Jowar from Osmanabad District of Maharashtra State

Uchitkar Balaji P<sup>1</sup>, Dhabe Arvind S<sup>2</sup>, Shinde Yogesh P<sup>1</sup>

<sup>1</sup>Department of Botany, Sanjivani Arts, Commerce and Science College, Kopergaon, Dist-Ahmadnagar-423603, Maharashtra, India

<sup>2</sup>Department of Botany, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431004, Maharashtra, India

### ABSTRACT

Jowar is the major crop after sugarcane and maize of Osmanabad district. Present paper deals with some traditional genotypes of Jowar found in Osmanabad district. Most of them are rare. They are used as medicinal plants and economically very important. It is the need of time to conserve them for the use of next generation. In present paper the traditional genotypes of Jowar like Jot, Lakdi, Maldagdi, Maldandi and Shendri are discussed.

**Key word:** Traditional, Genotype, Jowar.

### I. INTRODUCTION

*Sorghum* (*Sorghum bicolor* (L.) Moench) is the fifth most economically important crop among cereals in the world. It is grown on approximately 44 million hectares of land (Prakash *et al.*, 2010), in 99 countries (ICRISAT, 2009) with an annual production of 60 million tons (Iqbal *et al.*, 2010). *Sorghum* is third in importance after *rice* and *wheat*, and is currently grown on 8.7 million hectares with an annual production of 7.2 million tons in India (FAO) 2006). It has a number of advantages which have made it the traditional staple cereal crop in subsistence or low-resource agriculture in the hot semi-arid regions (Nagaraja *et al.*, 2008). *Sorghum* is the principal staple food of Maharashtra, and is also an important food of Karnataka, Madhya Pradesh, Tamil Nadu and Andhra Pradesh (Anonymous, 2006). In tropical and sub-tropical areas of Africa and Asia, *sorghum* is grown predominantly for human consumption. Normally *sorghum* is consumed in the form of *Roti*, porridges and boiled grains. Some of the sweet *sorghum* types have importance as a source of syrup for human consumption. Demand for other confectionaries, jaggery and malted beverages are increasing in India (Ratnavathi, 2017). In the developing countries of Asia and Africa, *sorghum* is a multipurpose crop and has diverse uses including human consumption and animal feed. *Sorghum* (*Sorghum bicolor* (L.) Moench) is a drought-resistant crop and an important food resource in terms of nutritional as well as socio-economic values, especially in semi-arid environments (Ilaria *et al.*, 2015). It is being grown in India in both *kharif*

(rainy) and *rabbi* (post rainy) seasons. The *rabbi sorghum* crop accounts for 45% of the total area under cultivation and 32% of the total production.

In present day, *Jowar* is major crop that undergoes large scale cultivation having commercial importance. Unfortunately, traditional landraces of *jowar* have been marginalized and their distribution is threatened. The traditional genotypes of *jowar* are very important however they are not popular.

## II. STUDY AREA

Osmanabad is the district of Maharashtra state, comprising eight talukas viz. Bhoom, Kalamb, Lohara, Omeraga, Osmanabad, Paranda, Tuljapur and Washi. Osmanabad is a drought prone area. The total geographical area of Osmanabad district is 7569. Km<sup>2</sup>. Out of which 241.45 kms, area is urban and 7271.0 sq. kms area is rural indicating the dominance of the rural sector (97%). Osmanabad lies at the southern part of Marathwada, between 17.35° to 18.40° North latitude and 75.16° to 76.40° East longitudes. It is located about 600 meters above the sea level. It is bounded by Solapur district to the South-West, by Ahmednagar district to North-West, by Beed district to the North and by Latur district to East. It comprises of 737 villages.

Nearly 32 % of its area comes under the rain shadow region. Annual average rainfall is 760 mm and drought is a permanent features. About 65% of agriculture is dry land farming and *Jowar* is the major crop after *sugarcane* and *maize*. Agriculture plays an important role in the Indian economy. Agriculture is the backbone of our country. It includes farming of crops, Over 58 % rural households primarily depend upon agriculture. In Osmanabad *jowar* is the main staple food of the people, which is grown over an area of 2553 kg/ha with an annual production of 1967 million tones. (Govt. of MH, 2015).

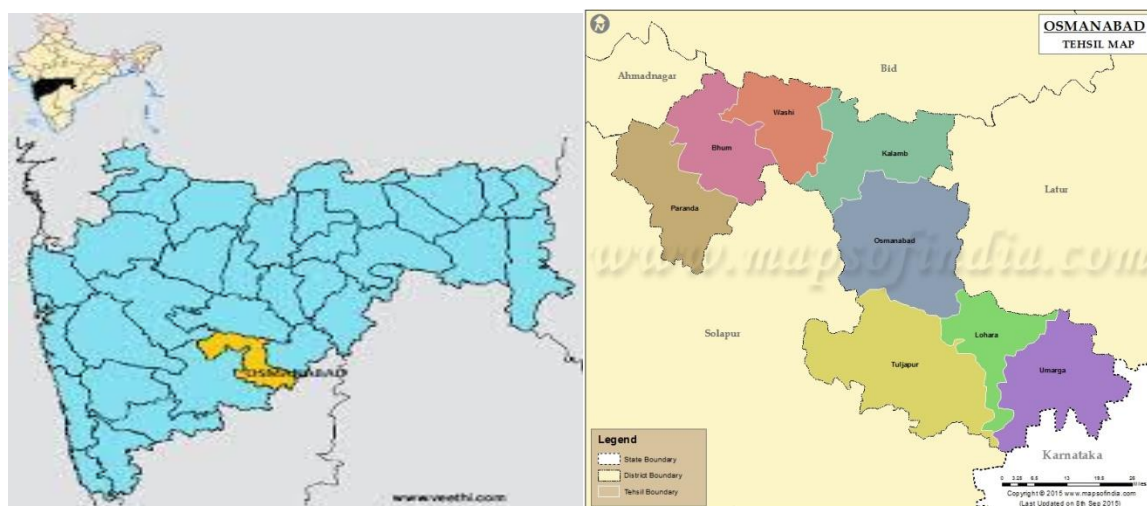


Fig. 1 Maps of study area.

## III. MATERIALS AND METHODS

An intensive survey was conducted to collect the traditional genotypes of *Jowar* from Osmanabad district. Frequent visits were made to the study area during both seasons i.e. *rabbi* as well as *kharif* season. The results of the survey gave five genotypes of *jowar* from Osmanabad district. Herbarium specimens of each genotype were prepared and deposited at BAMU Herbarium. Specific information was collected using the following methods: (1) Knowledge holders were requested to accompany us to the field and identified the genotypes; (2)

Specimens were brought to the village and shown to knowledge holders for sharing information; and (3) Photographs taken from the field crops for further study. The collection study of the areas was initiated from various localities of the districts.

The verification generally made on the basis of repeated information. Vernacular names of the traditional genotypes of *sorghum* appeared interesting and therefore have been also noted. The seed samples were collected from the farmers growing these genotypes.

### **Morphology of Traditional Genotypes:**

#### **1) Jot**

Morphological characters:

- Height of plant is 195- 225 cm.
- It is cultivated in rabbi season.
- Panicle is bend is the characteristics feature of this genotype.
- It produce more fodder which having good quality for cattle's.
- Crop grown in scanty rainfall.
- It requires less water, Duration for maturity is 110-120 days.
- The variety is drought resistant, suitable for less fertile soil.
- Production 6-7 q/ acre.
- Quality of roti is very good.
- Variety having good fodder value, cherished by animals.
- The straw bundles are sold in rural markets.
- Good fodder value being sweet.
- The grains are nutritious the yield is used domestically not sold in market.
- Grains are used as staple food.
- Special for young roasted grains i.e. Hurda purpose.
- Seed color: Bold white.

#### **2) Lakdi**

- Height of plant is 195-253 cm.
- It is cultivated in rabbi season.
- It requires black, well-drained soil.
- The variety is not cultivated in large scale.
- Less food value, rarely used to prepare bread.
- Suitable for any type of soil.
- It is also planted on field as borders for protection of the crops.
- Production 5-6q/acre.
- Seed color: Bold white.

#### **3) Maldagdi**

- Height of plant is 185-205 cm.
- It is cultivated in rabbi season.

- The grains are nutritious used for preparing bread and papad.
- Cultivated in black soil, heavy rainfall / irrigation are needed.
- Grown in drought condition. Proper irrigation gives good yield.
- The grains are not sold in market.
- The variety is largely cultivated on hill area therefore so called Maldagdi.
- Seed color: Bold white.

#### 4) Maldandi

- Height 188-210 cm.
- It is cultivated in rabbi season.
- Panicle is straight and semi compact.
- Good grain and fodder quality.
- Cultivated in all types of soil.
- Good quality of roti.
- Its flour having highest water holding capacity.
- It also having good organoleptic taste however the yield is low.
- It is cultivated in both seasons.
- Fodder yield is also better, cherished by animals.
- Crop is cultivated throughout the rural areas of Marathwada region.
- Production 5-7q/acre.
- Seed color: Pearly white.

#### 5) Shendri

- The height of plant is 165-187 cm.
- It is cultivated in rabbi season.
- It is adapted to all types of soil.
- It is cultivated in poor fertile soil, requires less irrigation, it is drought resistant variety.
- Less food value rarely used to prepare bread.
- Crop grown in scanty rainfall.
- The genotype is cultivated for fodder by some farmers, no marketing of the yield.
- Genotype does not require chemical fertilizers.
- The grains are crushed and offered to cattle's.
- Seed color: Reddish grey.

**Table No. 1. Grain purity percentage and weight.**

Sr. No.	Name of Traditional Genotype	Total wt. of 100 healthy grains (gm).	Purity Percentage
i	Jot	2.22 gm	100 %
ii	Lakdi	2.09 gm	98 %
iii	Maldagdi	2.26 gm	99 %
iv	Maldandi	2.84 gm	99 %
v	Shendri	1.91 gm	99 %

#### IV. RESULTS AND CONCLUSION

The field survey of Osmanabad district revealed 5 genotypes of Jowar belonging to 5 different Tahsils. Maldandi genotype is found to be heavier in weight and Shendri to be lighter in weight. All 5 genotypes are found to be medicinally important. 02 genotypes namely Maldandi and Maldagadi are used as antirhumatic; Shendri and Jot are antidiabetic and Lakdi genotype is used in Typhoid. It is interesting to note that, the farmers collect and conserve seeds for next season with hanging the panicle at homes or packed in knots. Lakdi genotype is endemic to Bhoom Tahsil of Osmanabad district. Other genotypes are common to Marathwada region. It is learnt from farmers that the Malgota, Pandharpuri and Kalbondi genotypes of Jowar are considered to be extinct.

The grains belonging to different genotypes vary in colors. The height of plant, panicle, colour of grains, taste, yields and uses are variable from genotypes to genotypes. The rural people have knowledge to conserve the traditional genotypes.

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Fig. 1. Jot.



Fig. 2. Lakdi.



Fig. 3. Maldagdi.



Fig. 4. Maldandi.



Fig. 5. Shendri.