

## Need for Cultivation and Conservation of Kala Zeera: A Forgotten Heritage Crop of Himalayas

Reetika Mahajan<sup>1\*</sup>, Wasim A Dar<sup>2</sup>, Bilal A Bhat<sup>2</sup>, Parul Gupta<sup>3</sup>, Mohammad Anwar Khan<sup>4</sup> and Sajad Majeed Zargar<sup>1\*</sup>

<sup>1</sup>Proteomics Laboratory, Division of Plant Biotechnology, Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Srinagar, J&K, India

<sup>2</sup>MARS, Sher-E-Kashmir University of Agricultural Sciences and Technology of Kashmir, Gurez, Jammu and Kashmir, India

<sup>3</sup>Krishi Vigyan Kendra, GADVASU, Mohali, India

<sup>4</sup>Division of Genetics and Plant breeding, SKUAST-Kashmir, FoA, Wadura, Sopore, J&K, India

**\*Corresponding Author:** Reetika Mahajan and Sajad Majeed Zargar, Proteomics Laboratory, Division of Plant Biotechnology, Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Srinagar, J&K, India.

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*Bunium persicum* (Boiss) Fedtesch, also known as 'Black cumin' or 'Shahi zeera' or 'Kashmiri zeera' or 'Himalayan zeera' have  $2n = 14$  belonging to family *Apiaceae* is a perennial herb that grows on its own in temperate and alpine regions at an altitude of 1850 - 3100m amsl in the world. In India, it is grows wildly, in dry and higher regions of Himalayan especially Jammu and Kashmir, Ladakh, Himachal Pradesh, and Uttarakhand [1]. It is one of the costlier spices grown naturally in hills of northwestern Himalayas. Kala Zeera seeds have strong flavor and aroma. Its tubers are also eaten as vegetable in hilly areas of Jammu and Kashmir. According to local farmers of Gurez valley, it is sold for ~7000 - 11000 rupees for 1 kg. The reason for its higher cost is its wild production. For the same reason it is can be called as "Black diamond". In order to earn livelihood local farmers usually harvest the unripe zeera from the mountains which is the main cause of its extinction. As such, it is high time for revival of this important crop for trapping its medicinal potential and upliftment of socio-economic status of people living in these areas.

### Medicinal value of Kala Zeera

Kala Zeera seeds are rich in essential oil (5 - 14%) which have antioxidative, antibacterial and antifungal activities. Essential oil components like cumin aldehydes (20.0%), Perialelydes (43.6%) are also the constituent of Kala Zeera seeds [2-5]. Kala Zeera seeds are mostly used as spice and in culinary. It has stimulant, antispasmodic, expectorant and diuretic properties which can cure a number of diseases like diarrhea, dyspepsia, fever, flatulence, stomachic, tooting, hemorrhoids, hiccoughs, hoarseness of voice and numerous other diseases [6-8]. In medical sector, Kala Zeera seeds are mainly used in preparing ayurvedic medicines. Its seeds have found to be helpful in regulating cholesterol level, reduce abdominal pain, regulating body temperature, and anemia, reduces immune disorders and cold. It also helps in digestion, helps in relaxing uterine muscles and in menstrual cramps, provides relaxation in gas, decreases the blood sugar level, assists to lower weight, reduces bad cholesterol, good for the cardiovascular system, enhances lactation.

### Cultivation and conservation of kala zeera

Unlike white zeera which is directly grown by seeds every year. Kala Zeera can be produced by two ways i.e. by seed or by tubers. In case of seeds, it cannot directly produce seeds. It takes 3 - 4 years for the production of tubers which later produce zeera seeds every year. However, if tubers of more than 2g weight are sown directly under proper soil and temperature conditions it will produce zeera seeds every year. It is also noted that the life span of zeera tuber is around 8 years after that it is exhausted. Kala Zeera was earlier cultivated by small number of framers in Jammu and Kashmir. But due to lack of knowledge about this crop and certain diseases which infect it, farmers stopped cultivating zeera since last two decades. Besides, its high commercial utility it remained overlooked and neglected for its cultivation practices and the major portion of the seed produce is harvested extensively from its natural habitats [1].

Now a days, local farmers collect the zeera from the naturally growing habitat. According to the locals, they pick up the whole zeera plant from the hills whenever they go for grazing the animals. This practice leads to the uprooting of the tubers also with the plants. This

way of collecting zeera leads to extinction of this heritage crop. Conserving this crop is a new challenge for the scientific community. Thus, there is need to educate the local masses for the importance of this crop and about the cultivation practices so that this crop can help them to fetches a handsome price in the market. Apart from conserving this heritage crop from extinction, the scientists are trying to find economic objective for this crop. This crop could be an alternative to saffron farmers. As zeera and saffron can be sown and harvested in different season on the same filed. Growing zeera crop with proper care could be profitable for the local farmers.

In this regard, we have initiated a programme for the revival/cultivation and conservation of *Bunium* through participation of traditional farmers in Jammu and Kashmir region. Recently, we have been successful in involving farmers for collection of diverse Kala Zeera germplasm lines from natural habitats of the hilly regions of Gurez and Padder (Kishtwar) (Figure 1). This germplasm is under evaluation at experimental field of Saffron Research Station (SRS), Pampore of SKUAST-Kashmir. Further, for proper cultivation and conservation of kala zeera, we have identified 50 farmers involved in *Bunium* cultivation in the Padder area of Kishtwar. Five beneficiary groups each of 10 participants were formed. On a similar pattern we will identify many such groups from the Kashmir, Gurez and other areas of Northwest Himalayas. High yielding kala zeera accessions with better essential oil content will be provided to the identified farmers for cultivation at Padder, Gurez and other areas of Northwestern Himalayas. Identified farmers are being time by time educated for conservation of the germplasm by organizing various awareness camps so that it can help the farmers in upliftment of their socio-economic status.



**Figure:** Various activities carried out by farmers of Paddar (Kishtwar)-Distribution of tubers to beneficiary group farmers, sowing of tubers by farmers in their fields and kala zeera field of farmers at Paddar J&K.

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