

## Pollen fertility and size of pollen grains in different varieties of grape

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### ABSTRACT

Studies on pollen fertility and size of pollen grains was undertaken on the thirteen years-old vine which were trained on overhead trellis. Anab-e-Shahi showed the highest (94.18 %) percentage of fertile pollen and average length and breadth of pollen grain was maximum in Bhokri.

**Key words :** Pollen, Fertile, Vine, Size.

Grape is the most important fruit crop grown in many states of India covering an area of 24,000 ha with an estimated production of 5,35,000 tonnes valued at Rs. 295 crores. Major grape growing states are Maharashtra in west, Karnataka, Andhra Pradesh and Tamil Nadu in south and Punjab, Hariyana and Uttar Pradesh in north India. Maharashtra occupies the largest area among the different Indian states.

Studies on flowering of grapes is a pre-requisite for undertaking any hybridization programme. Flowering behaviour like pollen fertility and size of pollen grain varies from place to place and variety according to temperature, humidity and other agro-climatic conditions. Therefore, studies on pollen fertility and size of pollen grains in different varieties of grape was undertaken under Parbhani conditions.

### MATERIALS AND METHODS

Data on pollen fertility and size of pollen grains were recorded in Gulabi, Anab-e-Shahi, Bangalore Purple, Cheema Sahebi and Bhokri varieties of grape.

In each variety, three panicles were marked for pollen studies. Before the start of anthesis these panicles were bagged with perforated butter-paper bags to avoid contamination of pollen grains from other varieties. All the buds which opened on the first day of anthesis were removed and five such flowers were selected for pollen fertility, and pollen morphology tests. The methods followed for studying pollen fertility, pollen morphology are as follows.

#### *Pollen fertility :*

The pollen fertility was recorded from freshly

dehiscenced anthers in two per cent acetocarmine glycerine solution. The random fields all over the slide were counted. The plump normal size and well stained pollen grains were recorded as fertile and the shrivelled and unstained ones as sterile.

#### *Size of the pollen grains :*

The size of pollen grain was recorded with ocular micrometer after mounting the pollen grains in two per cent acetocarmine glycerine solution.

### RESULTS AND DISCUSSION

#### *Pollen fertility :*

The pollen fertility was observed by acetocarmine test in the case of five varieties and the observations are presented in the Table 1.

**Table 1 : Pollen fertility in different**

Name of the variety	No. of pollen grains			Percentage	
	Total	Fertile	Sterile	Fertile	Sterile
Gulabi	470	382	88	81.28	18.72
Anab-e-shahi	756	712	44	94.18	5.82
Bangalore purple	782	733	49	93.73	6.27
Cheema Sahebi	805	692	113	85.96	14.04
Bhokri	715	606	109	84.76	15.24

It is evident from the Table 1 that, Anab-e-Shahi had the highest (94.18) percentage of fertile pollen, closely followed by Bangalore purple (93.73 %). Fertile pollen was lowest in Gulabi (81.28 %) followed by Bhokri.

#### *Size of pollen grain :*

The observations on the size of pollen are presented in the Table 2.