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Determination of Seed Health of *Mangifera Indica*

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INTRODUCTION

Mango (Mangifera indica)is the most important fruit crop in India. It is known as the king of fruits because of its large cultivation area. Delicious fruit quality and nutrition value.Mango is also regarded as the national fruit of the India and descrived as the "Food of the Gods" in the sacred Vedas.

The domestication and cultivation of mango during ancient times has been documented elaborately in the vedic scriptures.(Singhb l960)

Mango is the most important fruit crop of India and account for about 35% of total area under fruits and more than 20% of total production in the country. (NHB 2014)

The present study was made to find out the seed health of mangifera indica.

MATERIAL AND METHOD

Collection- The major mango varities cultivated in the Shamli District Uttar Pradesh were selected for this present investigation. We have selected the majority cultivated varities Langra.

The mango cultivar Langra seeds were collected from field of Shamli district in 2017-18.

Seed health testing

Seed health testing usually performed to observe the presence or absence of disease causing organisms such as insects, nematodes, fungi, bacteria and viruses. However, physiological conditions such as deficiency of the minor elements, microelements or micronutrients, might be responsible for the poor health of the seed (ISTA, 1985; Mew & Misra, 1994). The collected seed was subjected to evaluate the seed health

using various seed health testing methods.

1. Visual and external examination of seeds.
2. Seed washing test
3. Determination of seed viability
4. Percentage of moisture content
5. Internal examination of seed Visual and

Visual and external examination of seeds

The external examination of the selected seeds were done to inspection of the diseased, discolour, deformed (shape and size), germination, insect damaged seeds, weed seed contaminants, mites, insects plants parts and other inert materials such as soil (Musket, 1948, Mew & Misra, 1994). The collected seeds were examined by naked eye. The disease containing seeds could be easily identified by their deformed size and deformed shapes.

Seed Washing test

This method is most widely used for the detection of seed borne fungus that is externally seed- borne as spores on the surface of the seed (Mew & Misra, 1994).

In this method a fixed quantity of mango seeds (n = 10) was taken & seed is agitated for 2 to 5 minutes to the water, manually for proper mixing.

Determination of seed viability

The selected mango seeds were subjected to 2, 3, 5 triphenyl-tetrazolium chloride viability test (Porter et al., 1947). 10 seeds were taken from the collected sample and they were soaked in water for 96 hours at room temperature .

A solution of 2, 3, 5 Triphenyl tetrazolium chloride was prepared to conduct the test after that seed is exposed to the 1% tetrazolium chloride solution incubated at 30 + 2 °C for 96 hour to permit embryo colouration. Selected mango seeds were evaluated and classified into three categories, namely totally stained (viable seeds), partially stained and unstained (Porter et al., 1947, Flemion & Poole, 1948). Further more, the number of coloured seeds was counted. The determination of seed viability was carried out in triplicate. The mango seed viability was determined and expressed in percentage using the given formula.

$$\text{Seed Viability} = \frac{\text{Number of viable seeds}}{\text{Total number of seeds}} \times 100$$

Determination of moisture content

The moisture content of mango seed is examined for the presence of moisture accordance to ISTA rules. The seed moisture content is the amount of water present in the seed. Usually moisture content can be expresses as a percentage of the weight of the original sample. On wet weight basis (ISTA, 2016). We have used to direct method for the determination of the seed moisture content. Oven-drying method is the most commonly used direct method for the determination of seed moisture content in any seed testing laboratory (Parihar et al., 2016). In this method, the mango seed moisture content is measured directly by loss in seed weight. We have selected mango seeds (n = T0) and noted their initial weight. The seeds were placed in an oven maintaining a temperature of 50 °C. mango seeds are dried at this temperature for72 + 2 hours. There is no special requirement pertaining to the relative humidity of the ambient air in the laboratory during moisture determination. Seed drying period begins from the time oven returns to maintain the desired temperature. The determination of seed moisture content was carried out in triplicate. The moisture content was calculated using given formula:

Moisture content of seed = $\frac{W_1 - W_2}{W_1} \times 100$

Where

W_1 = Weight of mango seed sample

W_2 = Weight of mango sample after oven drying process

RESULT AND DISCUSSION

The present investigation was aimed to analyse the seed health of mangifera indica. All the experiments were carried out in Mycology laboratory of Botany department, Chaudhary Charan Singh University Meerut.

The observation of the present investigation on mango seeds are:

External inspection of selected mango seeds

The external examination of the selected mango seeds were done by naked eye analysis. The impurities such as diseased, discoloured, deformed, germinated, insect damaged seeds, weed seed contaminants mites, insect, plant parts and other inert material such as soil are removed before the seed treatment. The healthy seeds have been selected to evaluate the seed viability and moisture content analysis.

Moisture content

The initial weight of 10 mango seeds noted and dried at 50 °C for 72 seeds are noted.

Percentage moisture content of seed = $\frac{W_1 - W_2}{W_1} \times 100$

Where

W_1 = Initial weight of 10 mango seeds

W_2 = Dried seeds weight

W_1 = 212.930 gm

W_2 = 195.050 gm

Moisture of seed Moisture of seed = $\frac{212.930 - 195.050}{212.930} \times 100$

$= \frac{16.880}{212.930} \times 100$

= 7.927%

Seed Viability Percentage

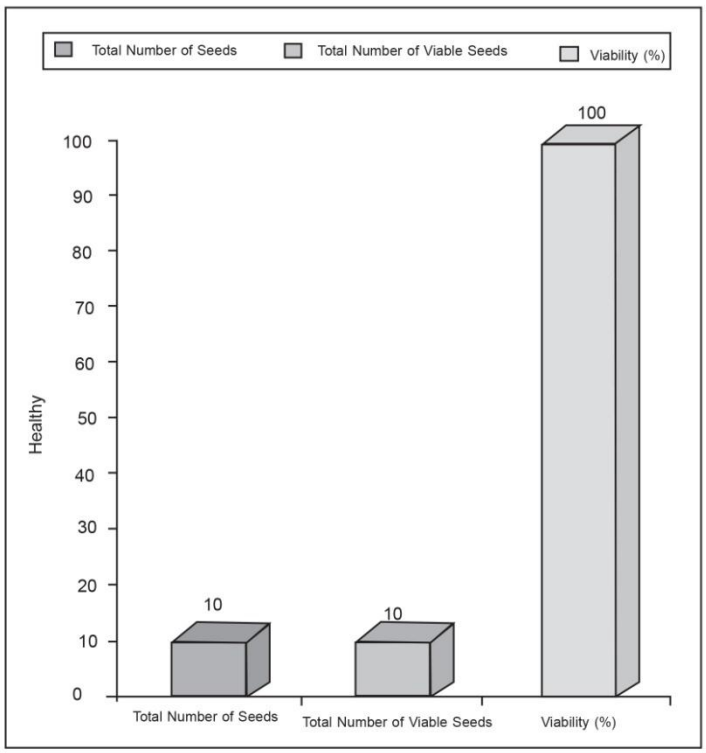
The test was done on 10 seeds sample. By counting the number of coloured seeds the viability was determined and expressed in percentage.

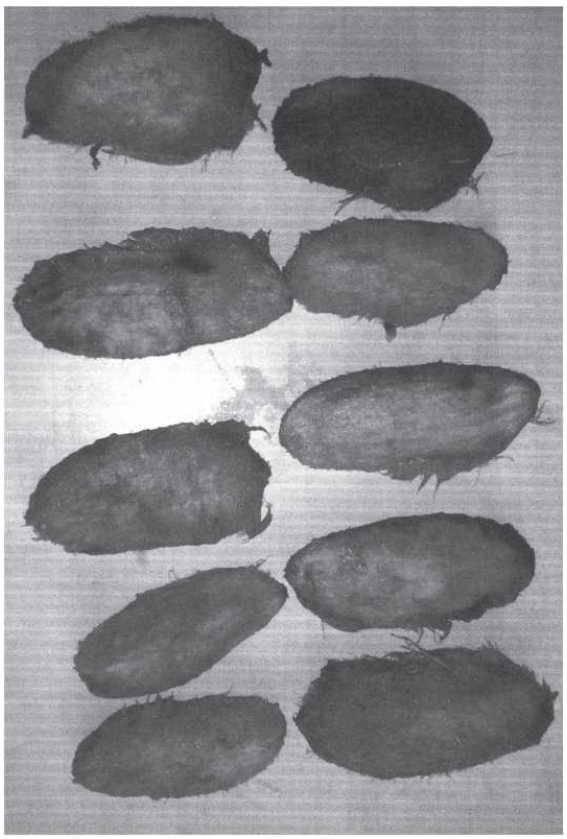
ir 1 -1-. Number of viable seeds .

$$\text{Viability} = \frac{\text{Number of viable seeds}}{\text{Total number of seeds}} \times 100$$

Table - Determination of seed viability of the mango seeds

S. No.	Type of Seeds	Total number of seeds	Total of viable seeds	Viability (%)
1.	Healthy	10	10	100





Seed Viability

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