



Effect of Seed Storage and Packaging in Vegetables

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INTRODUCTION

Seed is one of the basic input to upsurge the market of any agricultural crop. To maintain the quality, vigor and viability of the seed, good storage conditions and packaging material are considered to be the foremost basic requirement. Seed deterioration declines the quality of seed material mostly when stored under the unfavorable environmental conditions, due to which the annual losses in horticultural crops seed recorded upto more than 25 percent [1]. Packaging plays an important role in extending the shelf life of seeds by maintaining the quality attributes. Seed germination, viability and vigor depend upon the kind of packaging material, storage and storage duration. Number of different kind of packaging material are used to enhance the seed quality such as, air tight glass containers, aluminum foil pouch and aluminum laminated bags, cotton bags, tin containers and super-rage bags could be used and performed with significant results for seed storage [2]. This review paper has been reviewed to know the various effects of storage and packaging material on the seed germination, viability and vigour indexing particularly on vegetable crops namely tomato, brinjal, chilli, leguminous crops, okra, onion, radish and cucumber respectively.

DESCRIPTION

Seed is the basic input and the living entity that is influenced by various environmental stresses that directly affect the quality and in turn seed viability and seed vigour [3]. Moreover on that, seed quality is one of the most important inputs that can increase the level of farm yield, while seed quality and viability reduced to a greater extent due to poor storage conditions. Seed packaging play major role to maintain the seed vigor and viability in particular storage condition for a longer period of time. The quality of seeds does not decline instantly, but it depends on the time period [4]. There are two major factors, which affects the quality of the seed and leads to the deterioration of the seed material *i.e.*, moisture and high temperature. It directly reduces the emergence of seedlings, germination and growth. Hence, it is

vital to procure seeds in a suitable container, so it can help to enhance the seed. Seed deterioration can be explained in a better way, that it is loss of seed viability, quality and vigor, which is affected by adverse environmental conditions. In agriculture deterioration is considered as undesirable attribute, due to which annual losses in horticultural crops reaches about 25% and leads to lower down the productivity of any crop [5,6]. Unfavorable conditions during the storage of seeds will leads to decline the storability period, while seed viability do not remain more than one year under ambient conditions in unsealed containers packing. Whereas, on another side proper drying accompanied with air tight containers reduce the problems associated with seed viability and vigor. To important factors *i.e.*, better environment and proper packaging material could help to maintain the storage life of seed for a longer period of time. A new approach, called vacuum packaging has been developed that can extend the shelf life and maintain the quality of agricultural produce for a longer period of time as compared to traditional packaging by reducing the deterioration losses and maintaining moisture content to a safer limit [7]. Packaging plays a key role in processing, preservation of products and also extends the shelf life of seeds that leads to the development of better quality seeds. Storage of seeds showed tremendous positive and significant effects on germination efficiency, seedling vigour index without any deterioration losses in its biochemical constituents [8].

CONCLUSION

On account of the present paper reviewed, it can be concluded that ambient storage conditions, storage duration and better quality packaging material are the most important key factors that enhance and upsurge the quality of vegetable seeds. These factors are also known to enhance the various seed quality parameters *viz.*, germination percentage, seed vigour index, seed viability and vigour. To avoid the various losses that occurs mainly due to deterioration of vegetable seeds, it needs additional attention and more research work needs to be done in mounting proper storage conditions and also to develop

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better quality packaging material that directly leads to tremendous increase in the quality seeds of vegetable crops.

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