RESEARCH ARTICLE | International Journal of Plant Sciences, Vol. 4 Issue 1 : 224-228 (January to June, 2009)

Influence of biocides on the storability of scarified seeds of tamarind (*Tamarindus indica* L.)

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Accepted : December, 2008

SUMMARY

The hard coated tamarind seeds were scarified with commercial sulphuric acid, to reduce the deterioration during storage and to prolong the shelf life of tamarind seeds. The results revealed that the seeds treated with chlorine or iodine based halogen mixture @ 4 g kg^{-1} of seed maintained their viability and germination potential upto 9 months of storage under ambient condition. But none of the treatment was effective at 12 months of storage period due to insect infestation.

Key words : Tamarind, scarified seed, storage

Researchers involved with studies on seed senescence invariably insist that the seeds are to be protected with natural or synthetics seed protectants to prolong the shelf life of seed (Tervert, 1945; Delacruz *et al*., 1988; Srimathi, 1997) stressed the importance of seed protectants to extend the shelf life of seed. Tamarind is one of the important spice trees of India attracting many of the planters for its economic and medicinal values of the tree (Troup, 1921). The seeds of tamarind are hardy in nature and require acid scarification treatment for ready and uniform emergence of seedlings at nursery. With an idea to trace the storability of these scarified seeds and possibilities for extending its shelf life with the usage of biocides studies were initiated with bulk seeds of tamarind (local variety).

MATERIALS AND METHODS

Fresh seeds of tamarind were collected as bulk from the trees located near the Department of Seed Science and Technology, Coimbatore (11°02' N; 76°57 E; 426 M above sea level). The seeds were acid scarified with commercial sulphuric acid @ 200 ml kg^{-1} of seed for 15 min. and were shade dried for two days. The dried seeds were divided into eight equal parts and each of the part had been treated with carbaryl @ 2 g kg^{-1} of seed (Slurry), Bavistin @ 4 g kg^{-1} seed (Slurry) and Thiram @ 4g kg^{-1} of seed (Slurry). Neem leaf powder @1:100 as dry mix (Dry), Pelleted with neem leaf powder @ 200-300g kg^{-1} using 10% maida @ 200-400 ml kg^{-1} as adhesive, Neem oil @ 100 ml kg^{-1} of seed, chlorine based halogen mixture @ 4g $kg^{-1}$of seed (slurry) and iodine based halogen mixture @ 4g kg^{-1} of seed (Slurry). The unscarified seeds were served as control. The treated seeds along with the control were stored under ambient conditions of Coimabtore (28°C-32°C) for a period of 12 months in four replications. At trimonthly intervals samples were drawn treatment and replication wise and observations were made on moisture content, germination as per the ISTA, 1999. The ten normal seedlings obtained after seedling evaluation were measured for the seedling length (cm), drymatter production (mg 10 $seedlings^{-1}$) and vigour index values were computed as per Abdul-Baki and Anderson (1973) in whole number. One hundred seeds were randomly selected in each of the treatment and verified for the insect infestation (%) based on the visible hole made in the seed. The data gathered were analyzed as per Panse and Sukhatame (1995) to elucidate the variation among the storage seed treatments and storage periods.

RESULTS AND DISCUSSION

The variations among the seed treatments and the storage periods were highly significant to all the seed and seedling characters. The moisture content of seed increased with storage from 8.2 to 9.5 per cent with the storage period (from 0 to 12 months of storage) and was the maximum with scarified untreated control seeds. Among the treatments, the moisture absorption was low in neem oil treatment (8.3 to 8.8) and was the highest in neem leaf powder mixing (8.1 to 10.3%) (Table 1). The increase in moisture content with advance in storage period irrespective of storage treatment might be due to the attainment of equilibrium status of the seed moisture with the atmospheric moisture (Agrawal, 1995) particularly when seeds were stored in moisture pervious containers.

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