

Studies on germination and polyembryony of different citrus rootstocks seedling at nursery stage

B.N. SHINDE, V. K. PATIL, B.M. KALALBANDI, B.R. PAWAR AND S.J. SHINDE

See end of article for authors' affiliations

Correspondence to :
B.N. Shinde
Deptt. Of Horticulture M.A.U.,
Parbhani , SAGAR (M.P.)
INDIA

Accepted : February, 2007

ABSTRACT

Studies on generation and polyembryony of different citrus rootstocks seedlings at nursery stage were undertaken at Department of Horticulture, Marathwada Agricultural University, Parbhani. Twenty seven rootstocks were studied at nursery stage. Results indicated that high seed germination (54-81) was noted in L-19 Rangpur lime, lambheti local, Rough lemon chettali, Malta lemon, L-12 Eureka lemon, Rangpur lime local, L-2 Rangpur lime, Sohmydong, *Citrus macrophylla*, Nemu-tenga, Narangi coorg, Calamondin and lemon galgal. The generation was very poor (31 to 45) in Troyer citrange, Canizo citrange, Cleopatra mandarin (Grabstan), Troyer citrange (Punjab), Citrange A.P., Mannalade orange and savage citrange. Remaining rootstocks were medium (46 to 53) in seed generation. The generation count, in general appeared to have positive relation with the vigour of the rootstock seedlings. The polyembryony was highest in lambheri local, Sohmydong, Narangi coorg, *Citrus macrophylla*, Kumquat, Lemon galgal, Kichili and Marmalade orange, while it was lowest in Malta lemon, Savage citrange and Bengal citrange.

Key words : Citrus, Rootstock, Germination, Polyembryony.

Among the fruits, citrus group enjoys prime economic importance. It is cultivated widely in tropical and sub-tropical regions. In India citrus occupies 9 per cent of the total area under fruits. Yet it is the third largest fruit industry, next to mango and Banana. The rootstock is known to have a profound effect on the vigour, longevity, precocity, productivity, resistance or tolerance to disease and pests and the quality of citrus fruits (Aiyappa *et al.*, 1957; Rao *et al.*, 1971; Singh and Nagpal, 1947, Webber, 1948)

There has been increasing interest in the concept of higher density planting in recent past. Efforts were, therefore, made to probe into the germination and polyembryony studies of different citrus rootstocks seedling at nursery stage, so as to gather requisite knowledge related to dwarfism in citrus.

MATERIALS AND METHODS

The present investigations were carried out during 1977-80 at Department of Horticulture, Marathwada Agricultural University, Parbhani. Some of the species and varieties used in the present study were found to exert dwarfing effect of different intensities at Shirampur. Fresh seeds of various rootstocks as detailed in Table 1 were obtained from All India Coordinated Citrus Improvement Project, Shirampur (M.S.).

www.hindagrihorticulturalsociety.com

Seed germination

Uniform sized and healthy seeds of each rootstock were sown on raised bed with the help of a dibbler at 5 x 5 cm² spacing in three replications in the last week of March, 1978 and in the last week of September, 1978. The germination counter was taken on a total of 150 seeds of each species 10 days after sowing at an interval of five days. The number of seeds germinated was counted till the completion of germination and the percentage of seed germination was calculated.

Extent of polyembryony

For the study of polyembryony 150 seedlings of each species were uprooted one month after sowing. The young seedlings were pulled out gently along with the seeds. Seeds giving more than one seedling were counted to work out the percentage of polyembryony under various treatments.

RESULTS AND DISCUSSION

Seed germination

The data on seed germination of the first and second set of experiment (Table 2 and 3) indicated that L-19 Rangpur lime, Jambheri local, Rought chettali, Malta lemon, L-12 Eureka lemon, Ragpur lime local, L-2 Rangpur lime, Sohmydong, *Citrus macrophylla*, Nemu-tenga, Narangi coorg, Calamondin and Lemon galgal showed high seed germination (54 to 84%) and cleoptra mandarin coorg, Trifoliage orange, Cleoptra mandarin