

Studies on the effect of indole butyric acid and time of planting on performance of M₉ and M₂₆ apple rootstock cutting under high altitude conditions

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ABSTRACT

Effect of IBA on rooting efficiency in two clonal malling apple rootstock viz, M₉ & M₂₆ was studied during the year 2004-2005. Influence of the time of collection of the cuttings and IBA concentration (1500, 2000, 3000 ppm) were studied in respect of per cent survival, callusing, sprouting and rhizogenesis. Significant variation existed for these parameters in the two rootstock with significantly increased per cent survival, callusing, bud sprouting and rhizogenesis in M₂₆ with the application of 2000Ppm IBA than M₉. Best results were obtained with the application 2000ppm IBA collected in second week of June.

Key words : IBA, Rootstock, Survival, Rhizogenesis, Sprouting.

Apple is one of the premier table fruit of the world has been under cultivation since time immemorial. It is a typical temperate fruit. Nearly 80% of the world supply being produced in Europe with in the broad temperate zones. It gives the highest yield of good quality fruits having long day hours with high light intensity and relatively warm days with cool nights and low relative humidity during the growing season.

An approach to propagating apple rootstock by cutting through soft woodcutting rooted more under mist chamber. Apple tree produced through seed are now becoming unacceptable from the economic point of view as well as production & quality of fruits. By vegetative propagation on different rootstocks helped in overcoming some of these problems. Keeping above in view the present studies were conducted to see the effect of IBA application on propagation of apple rootstocks through stem cutting which lowers costs of multiplication.

MATERIALS AND METHODS

To study the influence of time of collection of rootstock cutting and their subsequent treatment with different concentration of IBA, an experiment was laid in RBD with three replication at FRS Pahnnoo Shopian SKUAST(K) under high altitude conditions. Two rootstock M₉ and M₂₆ were selected and their cutting were collected and planted at three stages of growth, viz. second week of June, second week of July and second

week of August. Experiment was conducted at zero energy polyhouse chamber after 1500, 2000 and 300 ppm IBA along with control. Data on per cent survival, callusing, sprouting and rhizogenesis was taken and after statistical analysis they are presented in Table 1.

RESULTS AND DISCUSSION

Two clonal rootstocks M₉ and M₂₆ planted at different stages of growth revealed that M₂₆ had the highest survival percentage (70.05%) as compared to M₉ (22.75%) rootstock. Similarly callusing induced in the M₂₆ was to the extent of 71.74 per cent against 23.55 per cent recorded in M₉ rootstock. Bud sprouting gives a measure of better root formation in the cutting for this parameter M₂₆ exhibited bud sprouting to the extent of 33.40 per cent as compared to 21.40 per cent in M₉ rootstock. Rhizogenesis was also observed to be higher (67.30%) in M₂₆ as compared to 21.89 per cent recorded in M₉ rootstock (Table 1). Several workers Kaundal *et al.* (1993), Noor Badashah *et al.* (1995), Rufalo and Kersten (2000), Bandy and Shahjahan (2003) reported significant difference in the rooting ability of semi hard wood cutting of different apple rootstock.

Application of different concentration of IBA showed that 2000 ppm was significantly better than 1500, 3000 ppm where as untreated cutting showed minimum survival of 11.20 per cent. The maximum sprouting of 33.99 per cent was noted at 2000 IBA applications as compared to 4.1 per cent in control. Similarly callusing also increased in the cutting upto 62.95 per cent with 2000 ppm IBA application. The per cent rooted cutting in the two cultivars