

## Studies on Induction of rooting in in vitro grown shoots of apple clonal Rootstock Merton 793

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An efficient and reliable procedure for rooting and hardening of in vitro raised shoots of apple rootstock, Merton 793 has been developed. 66.78% rooting was obtained with 1/2 MS medium supplemented with 0.1 mg/l NAA but the roots were thick and with profuse callus. 0.2% activated charcoal was used to suppress the callus but rooting efficiency reduced. Successful rooting was related to exposure of shoots to NAA supplemented liquid medium for few days and transferred to solid medium without NAA. Reduction of MS salts (1/3 and 1/4) and sucrose (20 and 15 g/l) in root elongation medium showed decreased rooting in comparison to 1/2 MS with 25 g/l sucrose. Among various substrates tested, agar was found the best among sand, perlite and tapioca pearls. There was no rooting in sand and perlite while, less rooting in tapioca pearls. Rooted plantlets of about 2-3 cm height were subsequently transferred to peat-sand for hardening. 70% plantlets established when roots were induced without callus. On the other hand, 80% of the plantlets established successfully when partial in vitro root initiation was carried out in liquid medium and ex vitro root elongation and hardening in peat-sand. For direct rooting, around 55% plant establishment was observed when shoots were dipped for 10 mins in higher concentration of NAA solution and planted in portraits containing peat-sand mixture. Partial in vitro rooting or direct rooting of shoots of M793 may be recommended for commercial propagation programme.

### Biography

Manju Modgil has completed his Ph.D at the age of 28 years from Himachal Pradesh University. She is Associate Professor (Biotechnology), Dr Y S Parmar university of horticulture and forestry, Solan (HP) and working mainly on apple tissue culture. She has published more than 32 research papers in reputed journals and 4 book chapters.

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## Study on respiration rate and respiratory quotient of green mature mango (*Mangifera indica* L) under aerobic conditions

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Accurate measurement of respiration rate is an important aspect in designing and operating systems such as controlled and modified atmosphere storage that will extend the shelf life of the perishable produce. The respiration rate and respiratory quotient of fresh mature green mango cv. Mallika were determined under closed system at 5, 10, 15, 20, 25 and 33°C (ambient) temperatures. The respiration rate based on carbon dioxide production in aerobic condition decreased about 20% relative to air atmosphere. However the oxygen consumption sharply reduced to 25-30% relative to air atmosphere at 25°C temperature. The results suggest that, the respiration rate of mango increased with temperature and decrease with storage time. At all temperatures, the O<sub>2</sub> consumption rate remained higher than the CO<sub>2</sub> evolution rate giving steady-state respiration quotient values between 0.29-1.14 at different temperatures. At a given temperature condition, RQ was found varying with the time under aerobic condition. Results of the study can be applied to the MAP design for extending shelf life of mango.

### Biography

Ranjeet Singh has completed his Ph.D from Punjab Agricultural University Ludhiana. He is working as Scientist (Sr. Scale), CIAE Bhopal a premier R&D organization. He has published more than 25 papers in reputed journals and received Bharat Joyti Awards-2011 by IIFS New Delhi.