D-03: Comparison between the growth of three tissue cultured clones of Corsican pine (*Pinus nigra* var *maritima*) with natural plants under greenhouse conditions

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The expression of mature characteristics was observed in many species when the tissue cultured plants were planted in natural environment. The growth of three *in vitro* produced clones (i.e.C1 - mature embryo origin, C2 - apical meristem

origin, C3 - young needle fascicle origin) were compared with 21 day old natural plants (C4) and one-year old plants (C5) under greenhouse conditions.

After 34 weeks from potting out of C1 - C5, almost all the plants showed apical dominance. The mean shoot length was greater in C2 comparing with other two clones (C1 and C3). There was no significant difference between C1, C3 and C4 in the mean shoot length but there was with C5. All C5 plants were pot bound, while only 10% in C4. Among three *in vitro* propagated clones, C2 showed the highest level of pot binding. Mean root collar diameter was highest in C5. There was a significant difference in C2 from C1 and C3 for root collar diameter. C4 showed the least root collar diameter. The root length was higher in C5, while there was no significant difference between C1 to C4.

The changing pattern of parameters was recorded. Shoot length and root collar diameter showed a parallel pattern in all five treatments over 34 weeks. The results demonstrated that one-year old plants had the greatest vigor. The *in vitro* propagated clones showed better vigor than natural seedlings, which were only 21 days old at the time of potting out. The root system of *in vitro* clones was more similar to those of one-year old plants. The *in vitro* propagated plantlets showed some mature characteristics like early bearing of paired needles and the apical dominance compared to the young plants.

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