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In Vitro Regeneration of Female Plants of *Simmondsia chinensis* (Link) Schneider (Jojoba) Using Coppice Shoots

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Abstract Jojoba – plants are trained during cultivation in our country and the numerous coppice shoots produced during subsequent years are removed periodically. Nodal segments obtained from these coppice shoots of 10 year-old female plants were successfully used for *in vitro* regeneration. Nodal segments produced axillary shoots on Modified Murashige and Skoog medium (MS-1) within a month. These shoots were incubated in dark in a liquid medium (MS-2) for 72 h (for early root initiation on subsequent medium) and then transferred to rooting medium (MS-3) where root initiation could be observed within a week. More than 80% shoots rooted in a months period.

Key words *Simmondsia chinensis*, Jojoba, Regeneration, Coppice shoots

Jojoba (*Simmondsia chinensis* (Link) Schneider is a dioeceous plant and the sex can be known only on appearance of flower buds which normally take 2-3 years. Three to four year old plant starts bearing seed but to achieve maximum yield the plants must be 10 years old. There is great variation in the bearing capacity of different clones and hence clonal propagation is of special relevance for increasing number of productive plants in a given plot (Chaturvedi & Sharma 1989).

Procedures are available for propagating Jojoba vegetatively by stem cuttings with generally 4-6 pair of leaves (Feldman *et al.* 1982, Low & Hackett 1981, Reddy *et al.* 1982) and by single node cuttings (Lee & Palzkill 1984). Rooting of cuttings requires considerable controlled green house facilities and more over only few cuttings can be obtained per elite individual. The productivity can be increased by many folds if selected mature female plants are propagated through tissue culture techniques. Several attempts have been made in this direction (Chaturvedi & Sharma 1989, Mandani *et al.* 1978, Mehta & Mascarenhas 1986, Wochok & Sluis 1979). *In vitro* regeneration through tissue culture was attempted at this Institute using nodal segments obtained from coppice shoots of ten year old female plants.

Materials and Methods

Jojoba, is trained during cultivation so as to have stem with regular crown. The coppiced shoots at the base continue to produce shoots which are removed regularly as they do not serve any useful purpose. For tissue culture, nodal segments from such coppice shoots were used. Shoots from 10-12 year old female plants were taken, as by this age it was possible to determine the sex as well as the yield potential. The branches were cut into segments each having two buds, thoroughly washed with ordinary water, immersed in 0.1% $HgCl_2$ solution for 10 min and finally washed thoroughly with sterile distilled water to remove traces of $HgCl_2$.

Murashige and Skoog's medium (MS) (Murashige & Skoog 1962) used in this study was supplemented with different substances at three stages as that of Mehta and Mascarenhas (1986) with the following differences. In medium MS-1 casein hydrolysate was deleted, sucrose was increased from 2.0 to 3.0% and 0.3% charcoal was incorporated (Incorporation of charcoal was necessary for normal development of shoots). The medium MS-2 of Mehta and Mascarenhas was not used. The media MS-2 and MS-3 in the present study are the same as media MS-3 and MS-4 of Mehta and Mascarenhas (1986). The composition of the different media used at different stages are given below (concentrations in mgL^{-1}).