



MICROPROPAGATION OF *RUMEX TUBEROSUS* L. SUBSP. *HORIZONTALIS* VIA ORGANOGENESIS

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The genus of *Rumex* which is belonged to polygonaceae family, consist of Perennial and annual plants, that are valuable source for vitamin C. The plants of this Genus are rich resource for oxalic acid and ascorbic acid which are used widely in Food and medicine industry. Also, according to traditional medical history, the essence of their leaves has been used for fever typhoid and infection. Although many improved plant Varieties has been regenerated tissue and cell culture techniques, thus it has more values for in vitro Studies. In *R. tuberosus* L. callus culture induction were induced on cotyledone, hypocotyl and stem tip explants. In MS medium supplemented with different concentration of 2,4-D and kinetin with 1 gr/l charcoal *Rumex tuberosus* L. granular and embryogenic calli developed and showed mature and 2% (w/v) sucrose In embryos. Hairy root appeared at later subculturing. When the osmolarity of medium Was increased, by adding %6 sucrose, cotyledon explants displayed a high capacity for Hairy roots formation. In addition to, MS medium supplemented with 1 gr/l charcoal, With %2 sucrose and different concentrations of IAA and BAP enhanced bud and then Shoot multiplication from epicotyls explants. Furthermore shoots proliferation and Developed to plantlets within 3-5 weeks at a frequency of 80%. Also in a same Treatment with %6 sucrose preferentially induced hairy roots from cotyledons.

References

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HAIRY ROOTS INDUCTION IN CHICORY (*CICHORIUM INTYBUS* L.) BY *AGROBACTERIUM RHIZOGENES* A4 STRAIN

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Chicorium intybus L. is a biennial herb that belongs to Asteraceae family and is one of the important medicinal plants. The different parts of this plant (roots, leaves and seeds) use for the pharmaceutical applications. The roots of the plant contains medicinally important compounds that use for treating AIDS, cancer, insomnia, impotence, dismenorrhoea, splenitis and diabetes. The most important components find in chicory include flavonoids, inulin, bitter sesquiterpene lactones, coumarins and vitamins. Hairy roots are formed by transformation of plant tissues with the gram-negative soil bacterium *Agrobacterium rhizogenes*, and have been found to be a suitable technology for the production of secondary metabolites. Such cultures have genetic and biochemical stability, rapid growth rate, and the ability to synthesize natural compounds at levels comparable to those of intact plants [3, 4]. In this study, the leaf explants from four-week old *in vitro* cultured seedlings transformed by *A. rhizogenes* A4 strain. Hairy roots were found to appear within 45 days of infection. Different root lines excised and immediately transferred to 30 ml ½ MS medium containing cefotaxime (250 mg l⁻¹) in 100 ml Erlenmeyer flasks and incubated in dark on a rotary shaker at 90 rpm and maintained at 24-25 °C. The growth of eleven root lines (A¹, B¹, C¹, D¹, E¹, F¹, G¹, H¹, I¹, J¹, K¹) that have more branched and more active growth were compared. The root line C¹ had the highest growth rate in comparison to the other root lines.