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Effects of Maturity and Hormone Level on Regeneration of Radish (*Raphanus sativus* L) Var. *Beeralu by* Apical Buds

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Abstract

Raphunussativus L. (radish) is a popular vegetable for its culinary and medicinal properties. It is used as a pungent ingredient for various medicinal purposes. Since conventional plant breeding methods are time and labour consuming, efficient *in vitro* propagation can be explored for its genetic improvement. This study focused on developing efficient in vitro propagation protocol for *R. sativus*, especially for Sri Lankan varieties (*i.e. Beeralu*). *In vitro* shoot regeneration ability was examined using aseptic apical buds with different maturity on Murashige and Skoog medium having different hormone levels.

Apical buds with maturity of 5, 10, 15, 20 and 25d were cultured on Murashige and Skoog (MS) basal medium with 1.5, 2.0, 2.5, 3.0 and 3.5mg/lBAP (Benzyl Adenine) and 0.1mg/l NAA (1-Naphthaleneacetic Acid). Completely Randomized Design (CRD) with five replicates was used for the study. After 30 days the numbers of regenerated shoots were evaluated. Observations indicated that there were a significant treatment effects at $p<0.05$ on regeneration of radish.

The highest number of shoots (6 shoots/bud) were obtained by 10d-old buds on 2.0mg/l BAP while 5 shoots/bud was obtained by 5d-old plant buds on 2.5mg/l and 3.0mg/l BAP and 10d-old buds on 2.5mg/l. Twenty-day old buds produced shoots only from 1.5mg/l and 2.0mg/l BAP and there were no shoots emerged by 25d-old buds. The study revealed high BAP concentration can be used to regenerate shoots from immature buds and low BAP concentration can be used regenerate shoots from mature radish buds.

Keywords: *Buds, BAP, Matuarity, Raphunussativus, Regenaration*

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