**Factors affecting *in vitro* shoot proliferation of *Vitis vinifera* (Grapevine)**

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Main objective of this research project was to develop a complete micropropagation protocol for locally grown varieties of *Vitis vinifera* (Grape vine). In achieving this the factors affecting *in vitro* shoot proliferation of two locally available varieties (Cardinal and Israel Blue) of grape vine were reviewed.

Shoot tips of healthy plants of known origin were used as explants to initiate proliferating bud cultures. Surface sterilisation was perfected at 1-2 minutes in 70% (v/v) ethanol and 10 minutes in 10% (v/v) Clorox, since this combination of treatments gave the highest percentage survival of explant. The effect of four different factors on shoot proliferation - media composition, position of bud on stem, level of subculture and grape vine variety - were studied. All four factors tested showed influence on shoot proliferation. Axillary buds excised from 2$^{nd}$ - 4$^{th}$ nodes from the apex gave the highest percentage of establishment. Optimum shoot proliferation (8 shoots per explant after 7 days in culture) was achieved on Murashige and Skoog medium supplemented with 1.0 mg/L Benzyl Amino Purine and 0.1 mg/L Indole Acetic Acid.

Sub culturing was carried out at 2-week intervals. Senescence and abscission of leaves were observed after three weeks in culture. Average proliferation and the rates calculated at each level of subculture, increased continuously with sub culturing. Average proliferation was significant at the fourth level of subculture in both varieties. An average of 49 shoot clusters per explant was obtained at the end of the seventh level of subculture. In general, multiplication at 7$^{th}$ sub culture, which was between 3-4 months after initiation, was highly satisfactory. The variety of grape vine and the level of subculture showed a significant effect (P=1%) on shoot proliferation under *in vitro* conditions. This confirms that tissue culture techniques could be successfully applied for mass production of grapevine, for commercial cultivation purposes.

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