IN VITRO PROPOGATION OF RAUWOLFIA SERPENTINA AND INVESTIGATION OF OCCURRENCES OF BIOSYNTHESIS OF RELEVANTALKALOIDS.

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ABSTACT

Rauwolfia serpentina therapeutically important medicinal plant which is widely used in traditional systems of medicine in Sri Lanka. Due to over explosion and low percentage of seed germination of *R. serpentina*. This plant should adopt ex-situ conservation methods from in vitro propagation techniques. The present study was carried out develop and efficient low-cost method of *in vitro* propagation for mass production of *Rauwolfia serpentina*. Other sub objectives of the present research were to select the most suitable hormones concentration and type of hormones. As well as an effective sterilization way with Clorox percentage were calculated. Then young healthy leaves were selected as explant for callus induction of *in vitro* propagation of s*erpentina*. For sterilization methods were used CSUP techniques. The CSUP method is the minimum cost sterilization method. It is using NaOCl instead the replace the use of expensive equipment in micro propagation. All the culture jars, culture tubes, glass bottles were sterilized by CSUP method. Callus cultures were initiated from different explants such as young healthy leaves in MS (Murashige and Skoog) medium supplemented with of 1.5mg /l BAP with 0.25mg/l 2, 4 – D and 0.02mg / l NAA with 1mg/l BAP. The best growth regulator concentrations were double concentration for NAA + BAP as 0.04 mg/l NAA with 2mg/l BAP for 7.5% Clorox. Also 2.5% Clorox concentration was suitable for 1.5mg/l BAP with 0.25mg/l 2, 4 – D media. When using 7.5% Clorox in explant sterilization in 5 minutes, least number of contaminations observed. Already without hormones concentration another best media to BAP + 2, 4 – D. Also, which experiment was conducted low – cost method to sterilized culture tubes and the culture medium as well as determine the most suitable hormones combination for tissue culture to identify the effective way to surface sterilization of explants.

When comparing chemical identities in callus, *in vitro* raised plants and naturally grown plants, qualitative GC-MS analysis revealed that yohimbine, aljacimine and serpentine which is an active ingredient in natural plants also present in both callus and *in vitro* grown plants. Also many relevant alkaloids are containing natural leaves and root. Root has showed the highest peak of alkaloid.