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### Optimization of micropropagation conditions of saffron corms (*Crocus sativus L.*)

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Saffron was introduced to Lebanon in 1999 in the Beqaa area to substitute white poppy (*Papaver somniferum*) and cannabis (*Cannabis sativ indica*) cultivation. Given that the number of saffron corms in the international market is limited, which constitutes an impediment to develop this crop in Lebanon, tissue culture offers a real potential to increase the number of corms per year in order to spread this cultivation quickly. The effect of carbon source on corms regeneration was studied using sucrose, fructose and glucose at different concentrations in combination with different strength of medium (MS, 1962). Meristematic explants cultured in sucrose and fructose 30 g/l had the highest number of sprouts (2.4). The highest growth index was observed in sucrose 30 g/l (83.8%), fructose 90 g/l (48.2%) and glucose 60 g/l (48%). Maximum embryos germination was obtained in MS medium supplemented with glucose 30 g/l (47%), fructose 30 g/l (33%) or sucrose 10 g/l (56%). However, sprouts were induced earlier in glucose 60 g/l (14 days) than other carbohydrates. In addition, ethephon decreased the dormancy period by 17 days at 12.5 mg/l and it was mostly efficient on meristems in comparison to apical buds, leaves and shoots. Freshly initiated somatic embryos germinated to form plantlets in MS ½ medium containing ethephon at different concentrations supplemented with 6-benzylaminopurine (BAP 1.5 mg/l) and  $\alpha$ -naphthaleneacetic acid (NAA 1.86 mg/l). Significantly, maximum shoot proliferation (2.4) and highest growth index (159%) were obtained from meristems cultured in ethephon 10 mg/l. In order to increase the cormlet size, these were cultured on MS ½ medium supplemented with BAP (6.5 mg/l) and NAA (0.5 mg/l). Growth performance of *in vitro* cormlets was evaluated under growth room conditions with an average size of 2.5 g. Strength media, types of carbohydrates and ethephon are important for further exploration in order to optimize mass propagation of saffron.

#### Biography

I currently working as an assistant professor in the Department of Life and Earth science, Lebanese University of Beyrouth, Fanar. I received my PhD in cellular and molecular plant physiology from the University of Picardie Jules Verne. I had a master degree in cellular and molecular biology from the University of Louis Pasteur, France and B.A in plant biology at the Lebanese University.

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