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An Efficient Low Cost Novel Medium "KFA" for Micropropagation of Lilium Asiatic

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Abstract Low cost technology for Plant Tissue Culture is promoted worldwide especially for the production of flowering or ornamentals crops like *Lillium asiatic*. As tissue culture media plays an important factor in deciding the cost of *in vitro* plants a continuous quest to find the substitutes of media components is in process. In an attempt to lower the cost of the in vitro micropropagated plants of different varieties of exotic *Lillium asiatic,* we developed an efficient low cost medium "KFA and KFA plus" (Flyash" as the main source of inorganic constituent; Patented), which could replace the widely used expensive Murashige and Skoog's medium. The comparison was done on four major criteria: % bud break, % shooting, % rooting and cost. When cultured on KFA and KFA plus, 70% bulblet formation was observed in KFA and 86.6% bulblet formation in KFA plus as compared to 83.3% in MS medium supplemented with IAA (0.8mg/l) + BAP (1.5mg/l). Healthy response and an average of 2.4 bulblets/explant were obtained. Healthy rooting from 70% shoots (developed from bulblet) was observed when they were cultured on KFA plus medium supplemented with same combination and concentration of plant growth regulators as compared to 50% rooting in MS medium. Cost of media was reduced 10 times by using KFA plus as culture media as compared to MS ready (Hi media, India) and very encouraging results in relation to growth and multiplication has obtained. Therefore, use of flyash media resolves our main aim to produce low cost plants as well as the reduction of disposal problem of thermal power plant waste, leading to phytoremediation.

Keywords: Novel medium, Flyash, Plant tissue culture, *Lillium asiatic*, KFA and KFA plus, micropropagation , phytoremediation.