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Correlation and path analysis in shoot tip derived *in vitro* mutants of coleus (*Coleus forskohlii* Briq.) for high yield and forskolin content

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ABSTRACT

The present investigation was carried out at Tissue Culture Laboratory, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore during 2003-2007. Coleus ecotype 'Garmai' used as the mother plant for culture initiation. Based on the sensitivity studies, fourteen mutagenic treatments were formulated in completely randomized block design with three replications. The shoot tip derived mutants were evaluated. The results revealed that the highest positive and significant genotypic correlation of yield was observed with number of leaves plant^{-1} and it was closely followed by number of laterals plant^{-1}. Other traits exhibited positive and significant genotypic correlations with yield were plant height and number of tubers plant^{-1}. The characters *viz.,* total alkaloids, essential oil and forskolin content showed negative correlation with yield. The path analysis of component traits on yield exhibited positive direct effects through the characters *viz.,* plant height, number of leaves plant^{-1}, tuber length, essential oil content and forskolin content. The direct effect was observed to be negative through number of laterals plant^{-1}, number of tubers plant^{-1}, tuber girth and total alkaloid content.

Key words : *Coleus forskohlii*, Shoot tip culture, Gamma rays, Ethyl methane aulfonate, Association analysis, residual effect