



RESEARCH PAPER

Genetic variations in *Ocimum americanum* L. (Tulsi) grown in *in vitro* and *in vivo* conditions

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Ocimum americanum has been used extensively in the traditional system of medicine in many countries. It is widely used in folk medicine as antimalarial and anticonvulsant drug. Its juices are used in pain, cough, cold, malaria, etc. Oils extracted from its leaves have antifungal, antibacterial and antiseptic properties. Plants grown *in vitro* may have difference in some aspects with those grown *in vivo*. The study done here showed the difference between the DNA and protein contents of the plant grown *in vitro* and *in vivo* using the technique, agarose gel electrophoresis. The difference in the size of DNA segments obtained shows that the plants grown *in vitro* have smaller DNA segments, some segment might also be broken. This could largely affect the proteins produced after translation which may be useful or even harmful in many ways. Maximum shoot multiplication was observed when concentration of BAP was 2000 μ l and NAA 20 μ l and maximum root formation was observed when NAA concentration was 2000 μ l and BAP concentration was 100 μ l. Using Lowry's method, the total protein content found in plant grown in *in vivo* conditions was 16.20 per cent whereas plant grown in *in vitro* condition had 10.00 per cent protein content, it was found that DNA of *in vitro* plant was smaller in size than *in vivo* plant. This study can prove to be a major threshold for further studies on the plant. Difference in DNA and protein contents can make large changes in its properties.

Key words : Plant tissue culture, DNA, *In vitro*, *In vivo* medicinal plants

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