ABSTRACT

The Western Ghats are one of the rich Biodiversity hotspots of India. It has been given the twelfth place among the 25 such biological hotspots worldwide and several habitats of medicinal plants have become threatened. *Plectranthus barbatus* Andrews of Lamiaceae, is an aromatic, erect herb, from a perennial rootstock. The plant is used to treat a wide range of diseases and accounts for about 68% of all traditional uses, which includes digestive, skin, respiratory, muscular-skeletal and genito urinary conditions, pain, infections and fever. *P. barbatus* is also used for horticultural, food and fodder purposes.

Hence, natural populations of *P. barbatus* are rapidly disappearing. Though the above species can be multiplied by seed and by stem cuttings, our experience shows that conventional propagation is beset with problem of poor seed viability, low seed germination rate and scanty and delayed rooting of stem cuttings. They pose serious challenges to conservation efforts of this species. Therefore, there is a real need to develop alternative propagation methods for this species. *In vitro* propagation methods offer a powerful tool for *ex vitro* conservation programs of this species and to regenerate a large number of plants. Macro nutrients, micro nutrients and plant growth regulators also has been provide with required concentration into plant tissue culture medium for well growth. The present investigation, outlines four main steps viz., 1. Micropropagation, 2. Direct organogenesis, 3. Indirect organogenesis and 4. Somatic embryogenesis. The regenerated plantlets were transferred to soil successfully and were similar to the parental plants in their morphology. The *in vitro* plantlets were mass multiplied and were reintroduced successfully in degraded habitats of the Palni hills in the Western Ghats.