

EXECUTIVE SUMMARY

“*In vitro* propagation in *Barleria lupulina* Lindl. – an important medicinal plant.” –

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Barleria belongs to the family Acanthaceae and is a large, widespread, polymorphic, pantropical genus of herbs and shrubs comprising some 300 species. Its greatest representation is in Africa (particularly the eastern parts) and Asia, with its greatest centre of diversity in tropical East Africa. *Barleria* species exhibit several medicinal properties. For instance, leaves of *Barleria cristata* have been used traditionally for the treatment of variety of diseases including anaemia, toothache, coughs and as a hypoglycemic agent and juice of the leaves is used in the treatment of ulcers and fever. *Barleria lupulina* Lindl has a strong inhibitory effect against acne-inducing bacteria. Root decoction or infusions of pounded leaves of *Barleria eranthemoides* R.Br. is drunk for the treatment of dysentery and taken against infectious diseases.

Barleria lupulina Lindl is a small shrub, commonly known as Sornomukhi and distributed in South East Asia. It is well known in Thai folk medicine, as the plant is externally used as an anti-inflammatory against insect bites, snake bites, herpes simplex, herpes zoster and varicella zoster virus lesions and it also has a diuretic effect and anti-amoebic activities. In preliminary micropropagation studies callus was initiated from leaf explants and was established however further studies were not done. Standardising a protocol for micropropagation has not been reported so far. Hence it will be an attempt for establishing a highly efficient protocol for micropropagation in *B.lupulina*.

Significance of the study:

Barleria lupulina is considered as an important medicinal plant and it is widely used and over exploited hence it should be multiplied by tissue culture methodology for maintaining the elite clones. Standardising a protocol for micropropagation will be prerequisite for further genetic modifications. Since the plant is widely infected by various fungal diseases a genetic transformation with disease resistance genes are very much essential.

The specific objective was to determine the appropriate chemical (nutritional) and environmental conditions for *in vitro* propagation of selected plant *Barleria lupulina* Lindl
Micropropagation technique and the work carried out as per the following steps.

- Collection and establishment of *B.lupulina* plants in green house and natural conditions
- Mother plant selection and preparation of explants.
- Callus initiation from leaf explants (BAP in combination with IBA and NAA)
- Shoot induction from leaf derived calli (BAP/KN alone or in combination)

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