

IN VITRO PROPAGATION AND FIELD CULTIVATION OF *BAPTISIA TINCTORIA* (L.) R. BR., A NEW FIELD CROP

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The use of *Baptisia tinctoria* roots and rhizomes in traditional medicine is well known, today the drug is an ingredient in immunomodulating pharmaceuticals, e.g. ESBERITOX[®] Schaper & Brümmer. The drug is still being collected from its natural habitat in the US with the risk of diverse quality and possible falsification with related species. It was therefore prudent to establish an agricultural method for obtaining high quality material.

Traditional cultivation from seeds proved impractical due to their hardseededness and low germination rate. Therefore, *in vitro* propagation of plants had to be established. Seeds were collected from plants with high quality properties among the wild endemic plant population of Ohio/USA. They were scarified, surface sterilized and brought to germination within a week. From the plantlets subsequently obtained meristem cultures were prepared using stem cuts. Using this approach, mass propagation was established at an industrial scale. It is possible and actually done to produce large quantities of plantlets from a collection of elite-clones. The adaptation of the plantlets from *in vitro* to greenhouse conditions proved difficult. However, it was possible to improve the survival rate considerably over the last few years. Plantlets are now transferred to the greenhouse in March where they are held at high humidity and appropriate temperature. One of the selection parameters used at this stage of acclimatization is mildew resistance. The adapted plantlets are then transferred to the fields in May and cultivated for three years. Currently about 8-10 hectares are grown with *Baptisia tinctoria* according to GAP rules (‘Good Agricultural Practice for medicinal and aromatic Plant Production’).

Since the *in vitro* culture, the *in vitro/ex vitro* adaptation procedure and the field cultivation have now been established, the main aspect of ongoing work is the selection and propagation of high performance clones leading to large yields of high quality drug.

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