ABSTRACT

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Title of diploma thesis: Recombinant mouse cytokine GM-CSF produced by transgenic tobacco

A cytokine GM-CSF has been used considerably as a medication recently. However, production of this cytokine is very expensive. Several recent studies suggest transgenic plants as an alternative source of biological active proteins such as cytokine GM-CSF. Transgenic plants could present a low cost source of these proteins. The main goal of this work was cultivation of the tobacco biomass in a form of callus culture able to produce GM-CSF protein. The callus culture is an initial stage for further transformation to suspension cultures suitable for a large-scale cultivation in bioreactor systems. Several lines of transgenic *Nicotiana tabacum* plants cultivated *in vitro* were compared for production of GM-CSF protein. We found the highest concentration of mouse GM-CSF protein in the line 23. The production was 3,250 µg of mouse GM-CSF in 1 g of the fresh leaf.