

Hemp (*Cannabis sativa* L.) is a multi-use crop, able to provide fibre cellulose and hurds for industrial treatment biomass for energy conversion and produces secondary metabolites useful for pharmaceutical application. For its resistance to stress and ability to accumulate high concentration of heavy metals it can be potentially used for phytoremediation. The aim of current research is the development of new strains, with specially improved qualities and the enhancement of its applicability. Besides traditional breeding methods, genetic manipulation might be the possible tool. What is currently discussed is finding optimal conditions allowing effective in vitro cultivation as a basic assumption of genetic manipulation. Hemp transformation via *Agrobacterium tumefaciens* co-cultivation might be the appropriate technic.