

Targeted biolistics for improved transformation of *impatiens balsamina*

Abstract :

A transgenesis programme has been developed for *Impatiens balsamina* that will allow elucidation of the roles played by individual genes in the flower reversion phenomenon shown by this model species. The lack of explants exhibiting adventitious shooting in *I. balsamina* hinders *Agrobacterium*-based transformation, but the multiple shoots that arise from cotyledonary nodes present a suitable target for biolistics. These tissues can be disrupted by the helium blast effect associated with conventional biolistic devices, so we have utilised modifications to the PDS 1000/He equipment originally developed for transformation of fragile insect tissues. By loading microcarriers on to a rigid, rather than flexible, macrocarrier, the blast effect is largely eliminated, and the use of a focussing nozzle allows the bombardment to be concentrated on the target tissues. This approach reduces waste of plasmid DNA and gold microcarriers and achieves transfection at lower, less disruptive helium pressures than would otherwise be necessary to efficiently penetrate below the shoot epidermis and generate heritable transgenic lines.