Method for obtaining rapid transient expression of transgenes in Amaranthus caudatus L. plants comprises: (a) obtaining plant seedlings; (b) culturing Agrobacterium tumefaciens bacteria in a liquid medium; (c) infiltrating the seedlings with a bacterial suspension in an infiltration buffer inside a vacuum chamber; (d) confirming the presence of uidA and gfp gene expression products in plant tissues using the GUS histochemical assay. At stage (a), unsterilized seeds are used; infiltration at stage (c) is performed under standard conditions without additional sterilization, using a simplified buffer composition: a 10 mM solution of $MgSO_4 \times 7H_2O$; subsequent cultivation of the seedlings until the start of result analysis is carried out under standard conditions, without sterilization. At stage (d), 24 hours after the histochemical reaction, the presence of uidA gene expression products is assessed based on β-glucuronidase (GUS) activity by visually detecting the appearance of blue staining in plant tissues, and the presence of the GFP protein, encoded by the gfp gene, is assessed visually 4 days after infiltration by illuminating the tissues with light at a wavelength in the range of 365–400 nm, based on the appearance of green fluorescence when examined under a fluorescence microscope.