

Conclusions

- 1) Leaves of transgenic tobacco with reduced level of CK aged more slowly, contrary to the control leaves. AtCKX2 plants maintained higher Chl content and protein content, and also higher photosynthetic performance in the oldest leaves.
- 2) We observed elevated antioxidant protection (both enzymatic and low-molecular) functional already in the youngest leaves of AtCKX2.
- 3) Enhancement of certain antioxidant defence could be caused compensatory effect of the decrease in the level of total CKs, assumed as potential non-enzymatic antioxidants or as a result of oxidative stress induced by the lack of CKs in young developing leaves.
- 4) It is plausible that the higher antioxidant defence might contribute to retardation of ageing with a consequence of postponed onset of senescence in leaves with a deficiency of CKs.
- 5) The responses of AOE activities to individual stresses differed between leaves and roots of both WT and AtCKX2 tobacco plants.
- 6) The higher tolerance of AtCKX2 plants could be attributed to noticeably higher activity of GR in leaves and APX, SOD and CAT in roots displayed already under control conditions. Although transgenic tobacco plants possess, at least partially, better antioxidant protection in non-stressed conditions, they were not confirmed to be more tolerant to abiotic stresses.
- 7) The difference between transgenic and WT plants in their stress responses could be associated with divergent sensitivity to imposed stress in consequence of protracted development of AtCKX2.