

The phytohormone auxin controls *Arabidopsis* petal growth and shape

Amira Bidani

Address: Gabes University, College of Sciences
Cité Erriadh-Zrig, 6072 Gabes-Tunisia

Present address: Reproduction et développement des plantes, UMR 5667
Ecole Normale Supérieure Lyon
46 Allée d'Italie, 69364 Lyon-France

Tél: 06 79 70 24 21

E-mail: amira.bidani@ens-lyon.fr; amiramarzoug@yahoo.fr

Abstract

Auxin plays important roles during the entire life span of a plant. It influences cell division, elongation, and differentiation. It has great impact on the final shape and function of cells and tissues in all higher plants. Previously we showed that the BIGPETALp (BPEp) basic helix-loop-helix (bHLH) transcription factor interacts with Auxin Response Factor8 (ARF8) to affect petal growth. We demonstrated that ARF8 limits cell proliferation early during petal growth. At late development stages ARF8 interacts with BPEp to limit cell expansion. Here we examined the effect of perturbation of auxin level, via overexpression auxin biosynthesis or inhibitory genes, on the development of *Arabidopsis* petals. Our data suggest that increase or decrease of auxin levels specifically in the petal, affect significantly petal growth. Petals displayed reduced size and modified cell density. Furthermore the data suggest that auxin action to control petal growth is likely mediated, at least in part, through *BPEp* and *ARF8*.

Key words: Plant hormone, Auxin, Petal development, *Arabidopsis thaliana*