

New cytokinin derivatives for plant biotechnology, agriculture and cosmetics

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6-benzylaminopurine, an important and affordable cytokinin, is routinely used in plant micropropagation for its stimulatory properties. However, this compound and/or its endogenous metabolites can negatively influence shoot proliferation as well as rooting and acclimatization competency in some plant species (Werbrouck et al., 1996, Aremu et al., 2012). Based on our recent search for naturally occurring aromatic cytokinins in plants, we discovered several groups of their analogues with high activity in different cytokinin bioassays as well as their ability to activate cytokinin receptors and/or to inhibit cytokinin oxidases. The best compounds were tested during micropropagation and acclimatization processes of selected plant species. Subsequently, a wide range of endogenous plant hormones were quantified *in planta* during these experiments and compared in relation to cytokinins exogenously applied for their micropropagation efficiency. Results of this quantification study have been used to design a second generation of cytokinin derivatives, with improved metabolic properties.

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