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Studying the molecular physiology of auxin during the grafting process in *Carya cathayensis*

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Application of various hormones improves the grafting process and among which auxin plays a vital role for the formation of vascular reconnection. Auxin role in the grafting process was analysed by studying the differential expression pattern of auxin-associated genes (ARF, GH3) and transporter genes (ABC and Aux:Hyd) under auxin- and NPA- (an auxin inhibitor) applied conditions at 0,3,7 and 14 days after grafting (dag). Analysis shows that the expression of GH3, ARF and Aux:Hyd genes were found to be low at the time of grafting but increased at 3 and 7 dag and again get reduced at 14 dag. While the expression of ABC gene was found to be high at 14 dag and got reduced at 3 and 7 dag. Further the application

of IAA or NPA to the grafted sample is not influencing the gene expression in a concordant way. With the availability of rough draft unigene library for Hickory tree species to our group, 34 different ARF genes were identified and analysed for their expression level at 0, 7 and 14 dag. Among the 23 genes analysed, 15 genes expression level are not affected at various time of analysis and 5 of the genes expression were not detected in the grafted plants. While 3 of the gene expression level got drastically reduced at 7 and 14 dag when compared with 0 dag which shows that these ARF genes have specific role in the grafting process which has to be studied in detail in the future.

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