A RETROTRANSPOSON-BASED- STRATEGY FOR THE ASSESSMENT OF GENETIC AND EPIGENETIC STABILITY OF OIL PALM EMBRYOGENIC SUSPENSIONS

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Clonal regenerants of oil palm (*Elaeis guineensis* Jacq) can display a detrimental variant phenotype called *mantled* which affects the floral morphology of adult palms thus lowering oil yields in clonal offspring. To date, early detection markers of variant cell lines have failed to be identified. To circumvent this difficulty, we aimed to investigate the genetic stability of in vitro cultivated cells during proliferation in order to both evaluate the risk of somaclonal variation and to define new tissue culture strategies. Given the epigenetic nature of the *mantled* phenotype and the growing knowledge on the role of transposable element in the epigenetic control of gene expression, our present work focuses on the fate of retro-elements in oil palm cell suspensions propagated during one year. To address this question, we firstly undertook a partial sequencing of the oil palm genome in order to identify the diversity of transposable elements through bioinformatics analysis. In a second step, we used a S-SAP marker analysis for the assessment of dynamic changes in retrotransposons over the *in vitro* proliferation period and with respect to the *mantled* phenotype. A massive transcriptome analysis is currently undertaken on the same material which will provide features of retrotransposon activity during oil palm tissue-culture. Such a strategy will help us understanding the implication of transposable elements in genetic and epigenetic genome instability occurring during long term oil palm tissue-culture and furthermore to secure oil palm micropropagation process by developing a biomarker system.