Supplementary Figure 9 – Duplication and inversion of four plant genes in linear NeoChr25 and circular Neochr26.

An unexpected recombination was observed upon integration of the genes encoding the anthocyanin production pathway in the linear and circular NeoChrs. A) Schematic representation of the *in silico* design for the integration of the anthocyanin pathway in the circular NeoChr26 of IMF40 resulting in IMF41 and the linear NeoChr25 of IMF34 resulting in IMF42. B) Schematic representation of the genetic organization observed in IMF41 and IMF42. The last four genes in the anthocyanin pathway (*coAtF3H*, *coGhDFR*, *coAtANS* and *coAt3GT*) were duplicated and inversed, and *ARS106* was absent. The dashed boxes illustrate the recombination events that occurred on the left and right flank of this duplicated region. For the left flank, there was probably an exonuclease and subsequent Non-Homologous End Joining (NHEJ) event between the two SHR CJ, since there was no homology between the inverted and non-inverted sequences. In the sequenced IMF41 strain (circular) 57 bp of SHR CJ was retained and in the sequenced IMF42 (linear) 51 bp of SHR CJ was retained. For the right flank, in the IMF41 strain (circular) the first 649 bp showed exact homology to *pSeFBA1*, while the last 414 bp showed exact homology to *pScFBA1* (100% homology overlap of 7 bp). In the sequenced IMF42 strain (linear) the first 29 bp showed exact homology to *pSeFBA1* and the last 710 bp showed exact homology to *pSceFBA1* (overlap of 100% homology is 24 bp).

