

Figure 1 :

a' ; the pseudomolecules represent each chromosomes. Pseudomolecules mean the molecules that have been reconstructed after the assembly of the genomes.

c' ; repeat elements are dispersed through all chromosomes even if the elements are usually more concentrated in the pericentromeric regions means on both sides of the centromere.

D' and e' : copia and gypsy are types of repetitive elements and are distributed among the different chromosomes

F' number of gene : they are distributed among the chromosomes even if you can see that you have region of the chromosomes where the genes are more concentrated. Usually the genes are excluded from the centromeres because you can find in this region, repetitive elements. It seems that when you have genes you don't have repetitive elements.

G' : syntenic blocks. Following the different colours you can see that each colour is represented at least in 2 different chromosomes. For example look at the chr 13 and 14, or the Chr 12 and 7. The fact that each colour is represented 2 times can drive us to think that in the history of this plant it should have a whole genome duplication. Each block will be present 2 times but the 2 copies can have a different evolution. You can see that the sequences present in chr 1 is present in 3 other chromosomes (chr 9, 11 and 13). It reflects the fact that the different chromosomes can have a different evolution history.

Figure S2 : chloroplast genome

Size always around 150kb even if you are looking at a fern or a tomato. The DNA is circular double stranded DNA. Each strand can serve as a template for transcription and translation. It's why you can find genes on both side of the circle. You have less than 100 genes uncoded mainly involved in photosynthesis but also on elements implicated in translation and transcription since the chloroplast is able to transcribe and translate its own DNA.

Figure 2 : in A and B you have the distribution of repetitive elements in 3 species. You can see that in *I. polycarpa* there is an increase in Gypsy and Copia elements since which is a specificity of this species.

We can see in E and F that the Gypsy elements are overrepresented in the *I. polycarpa*. Now we have to understand why these elements are overrepresented and the functions