

## **Additional File 1 – Supplementary figures (supplementary\_figures.pdf)**

### **Figure S1 – PAGE of sRNA libraries from *F. cylindrus* and *T. pseudonana***

15% Polyacrylamide gel stained with EtBr showing cDNA libraries of sRNAs obtained from RNA from *F. cylindrus* and *T. pseudonana*. RNA from tomato leaf and fruit for size comparison purposes. DNA marker for quantification purposes.

### **Figure S2 - Venn diagram of miRNA predictions**

Venn diagram depicting the number of predictions by miRNA prediction tools: miRCat (plant parameters), miRCat (animal parameters), and miRDeep2

### **Figure S3 - Size class distribution of sRNAs mapping to repetitive elements.**

Redundant counts for sRNAs that mapped only to repetitive elements are shown for each diatom with colours based on the five prime most nucleotide of sequences.

### **Figure S4 - tRNA-derived sRNA summary**

a) Correlation of total tRNA abundances for each tRNA between diatoms. b) Top cleavage sites for the most abundant tRNAs in each diatom. Arrows indicate where the cleavage happens in a particular diatom, and the percentages listed are out of all tRNA derived sRNAs. c)/d) relationship between tRNA abundance and copy number in each diatom.

### **Figure S5 - Schematics indicating domains for possible dicer candidates.**

Bioinformatic prediction of protein domains in putative Dicer-like proteins in *T. pseudonana* (Tp-Dcl1) and *F. cylindrus* (Fc\_Dcl1) compared to *Homo sapiens* Dicer protein (Hs\_Dcr). DEXDc/HELc: DEADc/HELICASEc domain, dsRNA\_bind: double-stranded RNA-binding domain, DSRM: double-stranded RNA-binding domain, DNMT: DNA methyltransferase domain. The prediction was done using RPS BLAST against the Conserved Domain Database, (online at <http://www.ncbi.nlm.nih.gov/Structure/cdd/wrpsb.cgi>).

### **Figure S6 - Hydrogen peroxide experiment with *T. pseudonana*.**

*T. pseudonana* growth conditions (number of cells, photosynthetic activity). Arrows indicate the points in time when hydrogen peroxide (20  $\mu$ M) was added and when the culture was harvest for two biological replicates.

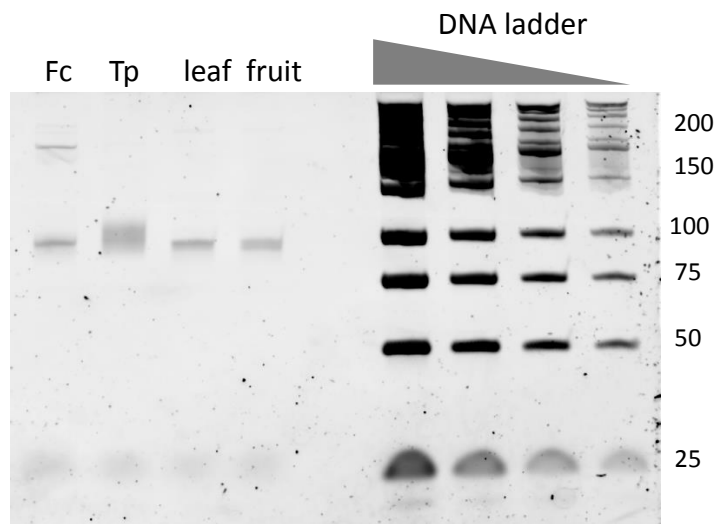
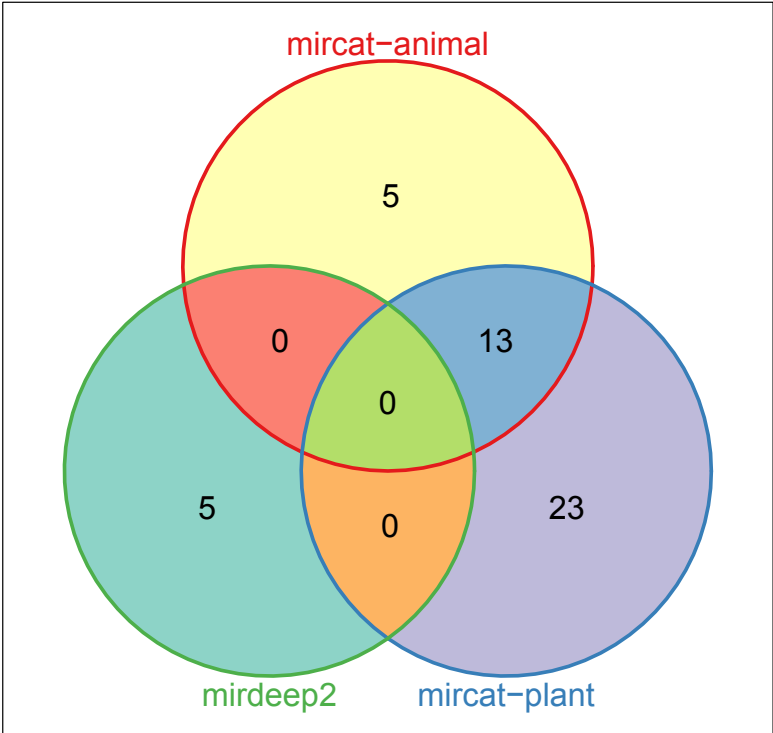


Figure S1

(a) *T. pseudonana* (46 candidates)



(b) *F. cylindrus* (177 candidates)

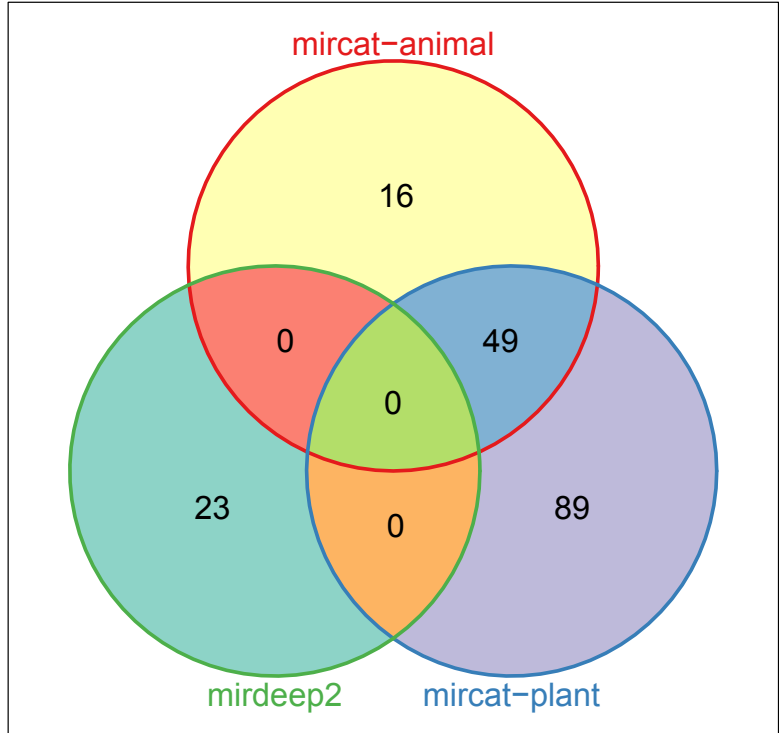


Figure S2

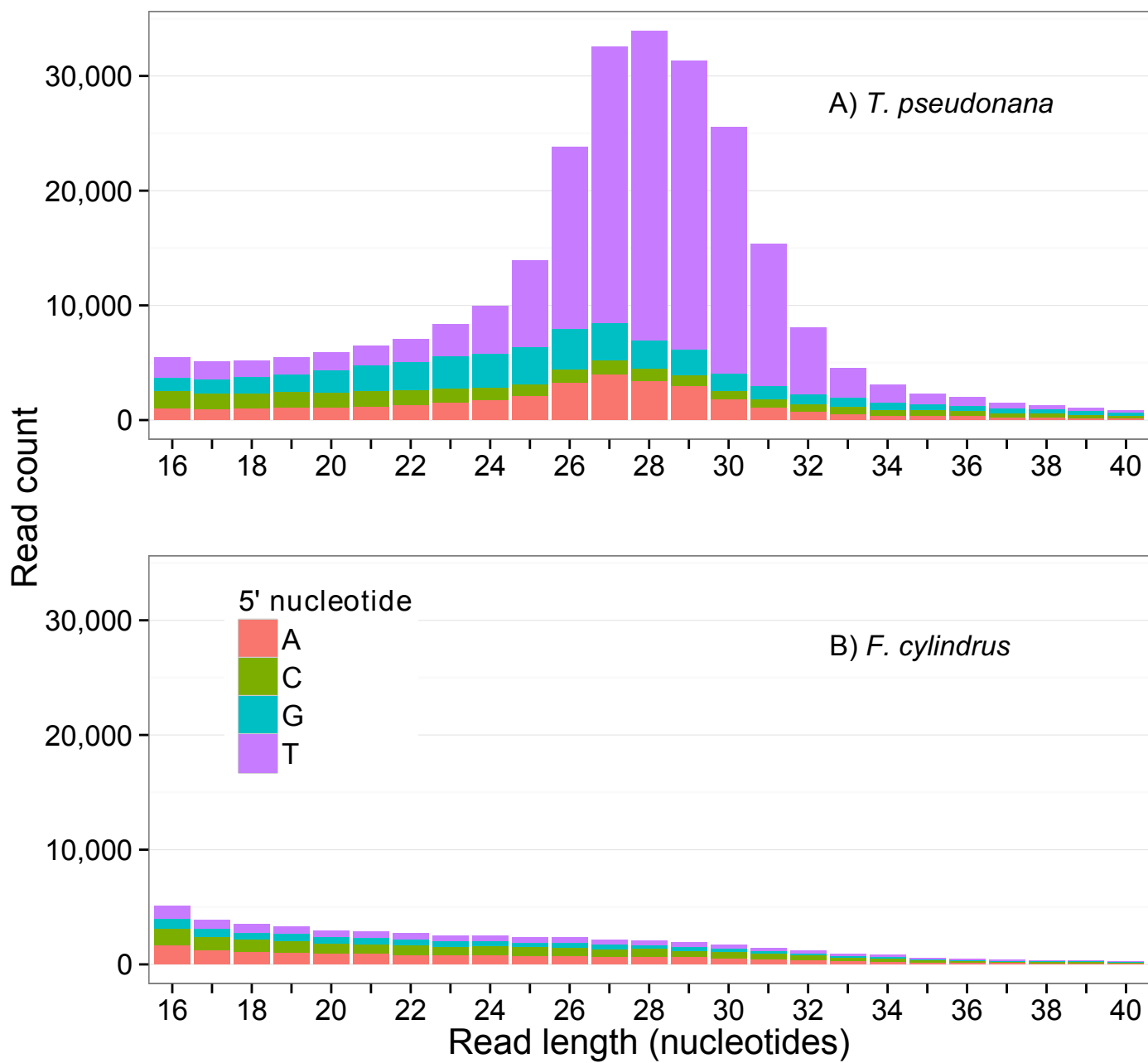
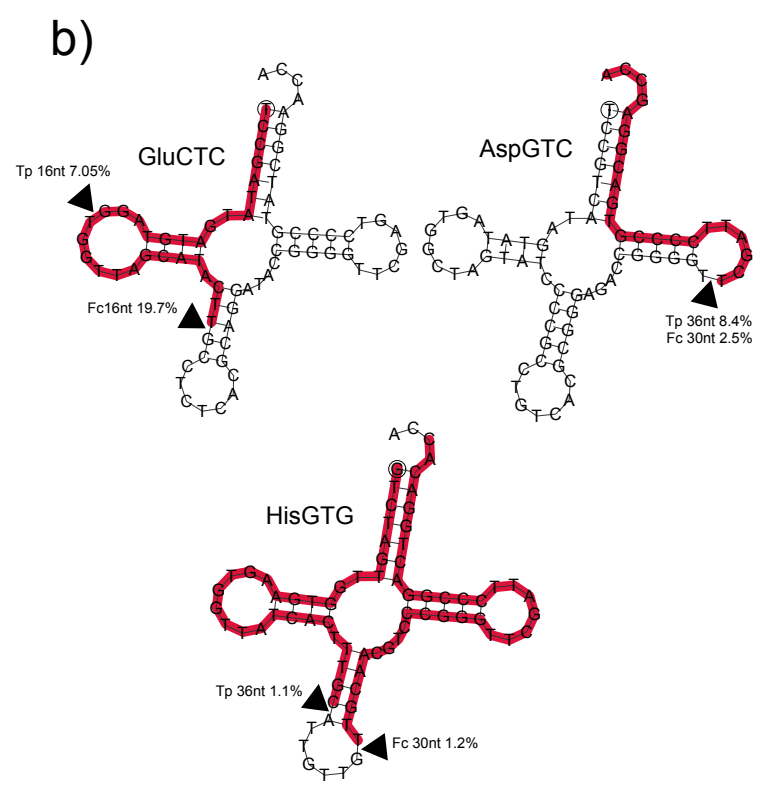
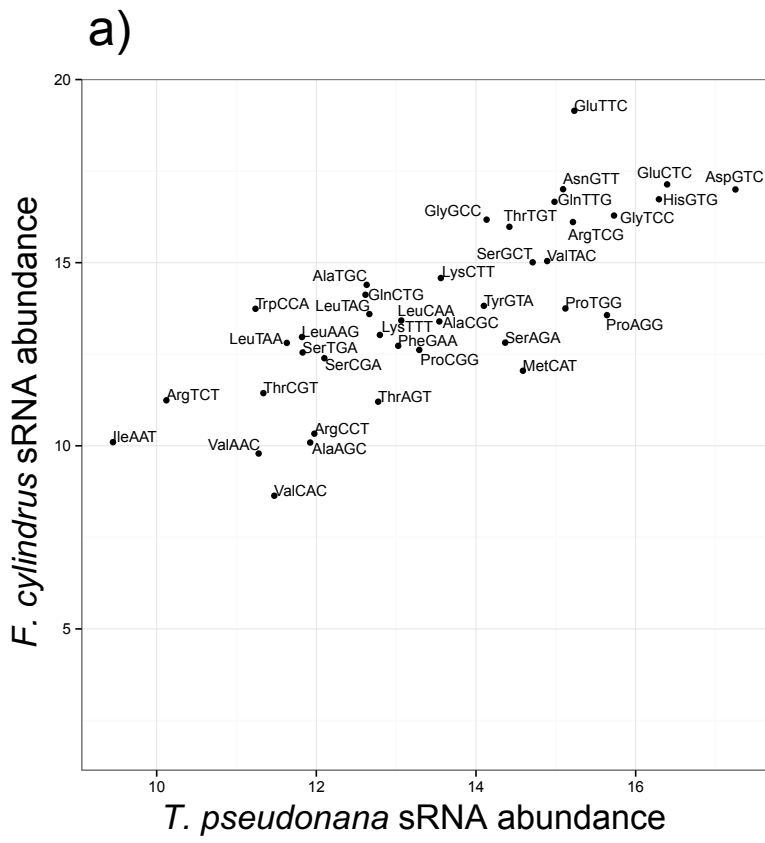
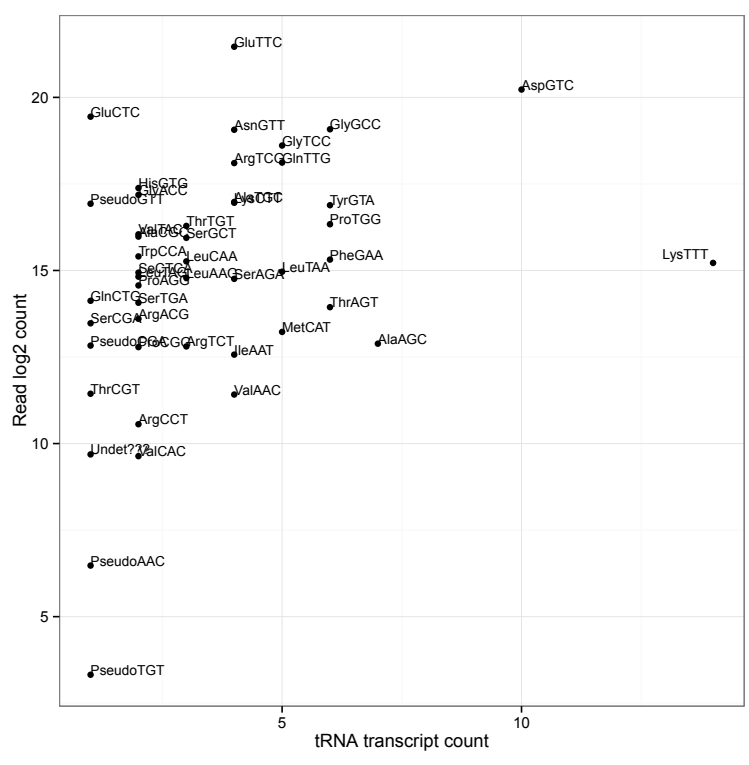


Figure S3



**c) *T. pseudonana***



**d) *F. cylindrus***

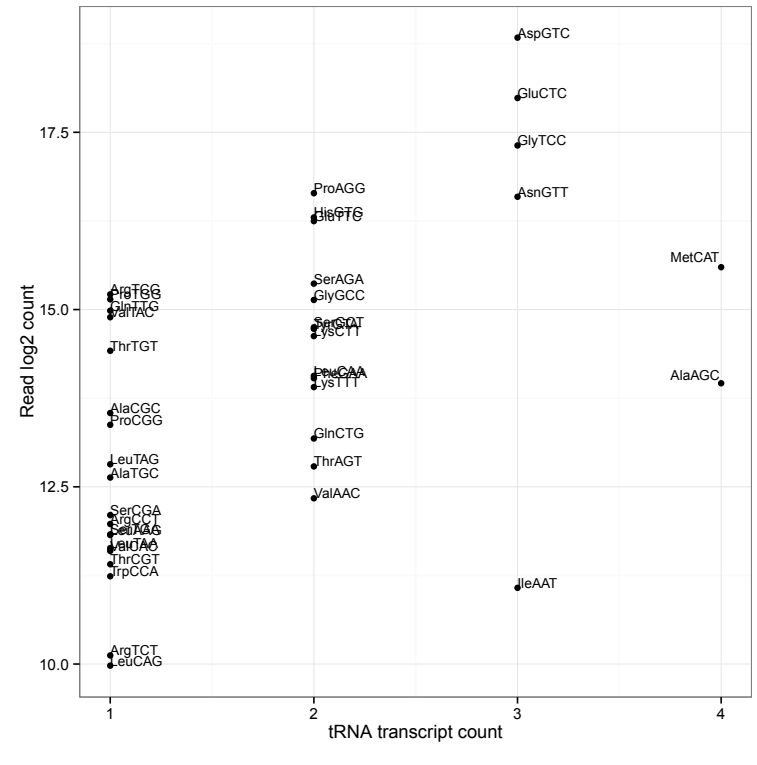


Figure S4

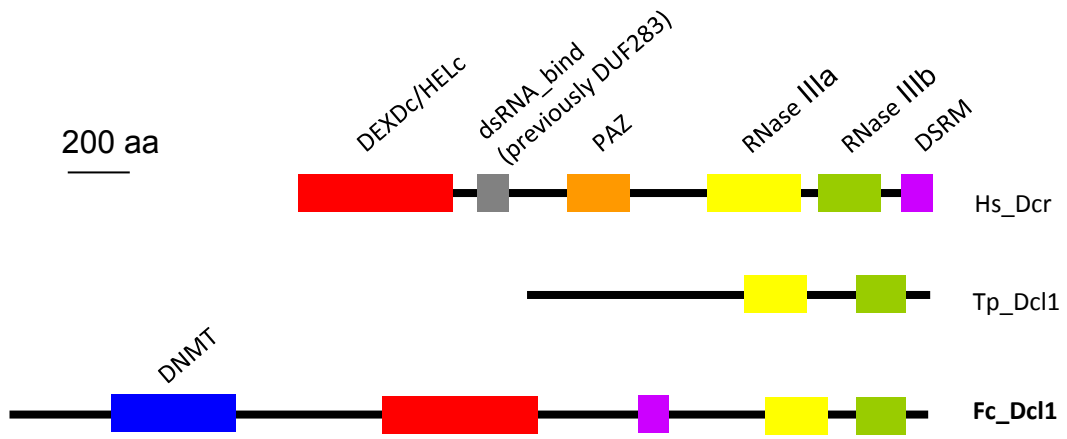
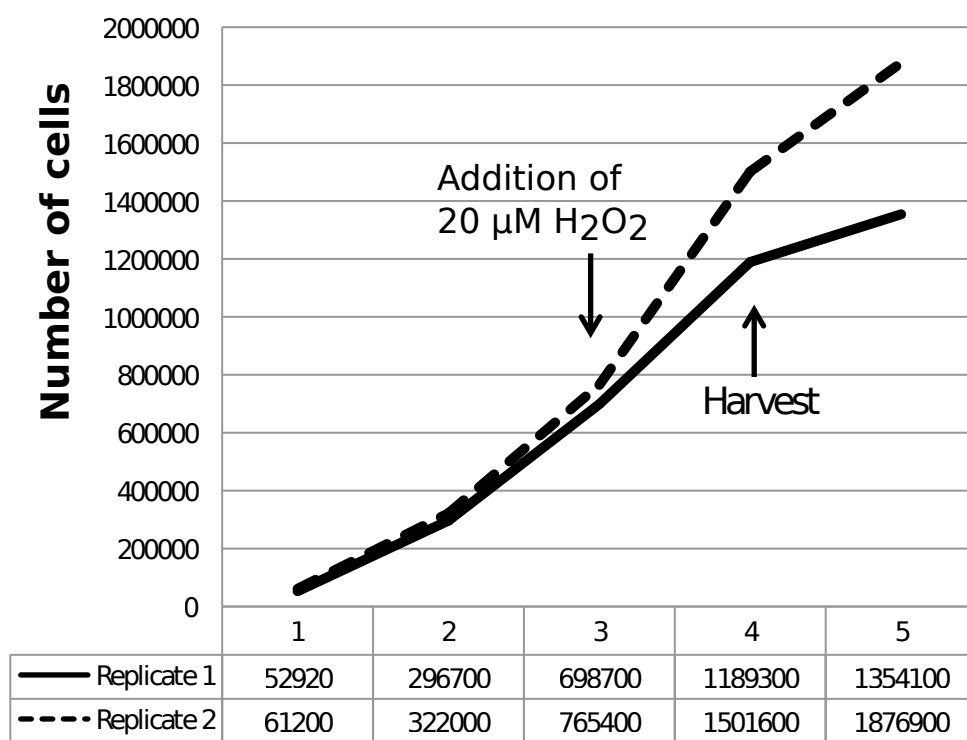
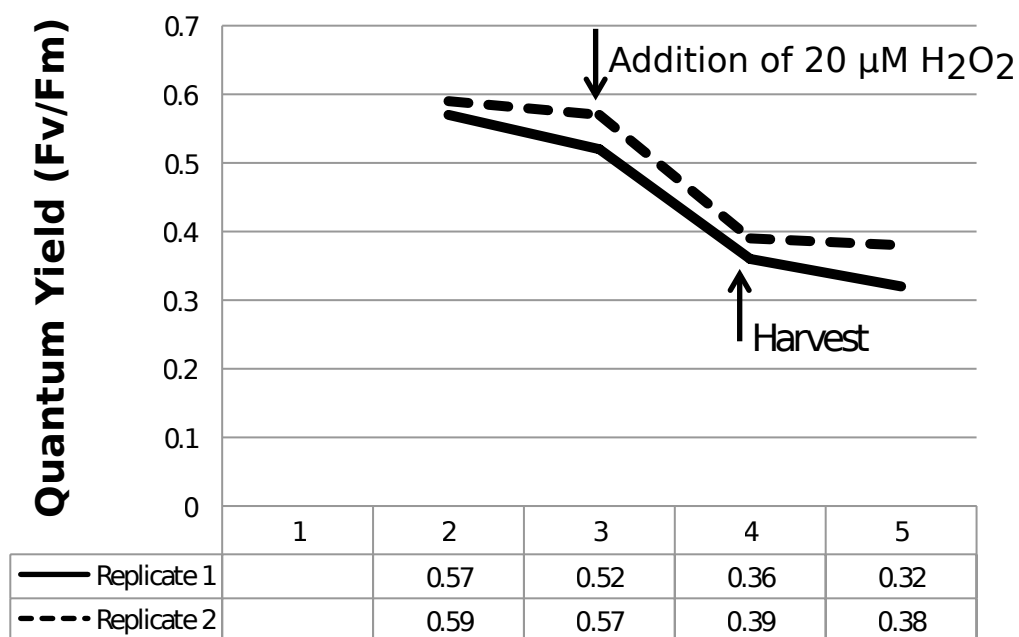


Figure S5



**Time (days)**



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Figure S6