

## Supplementary material

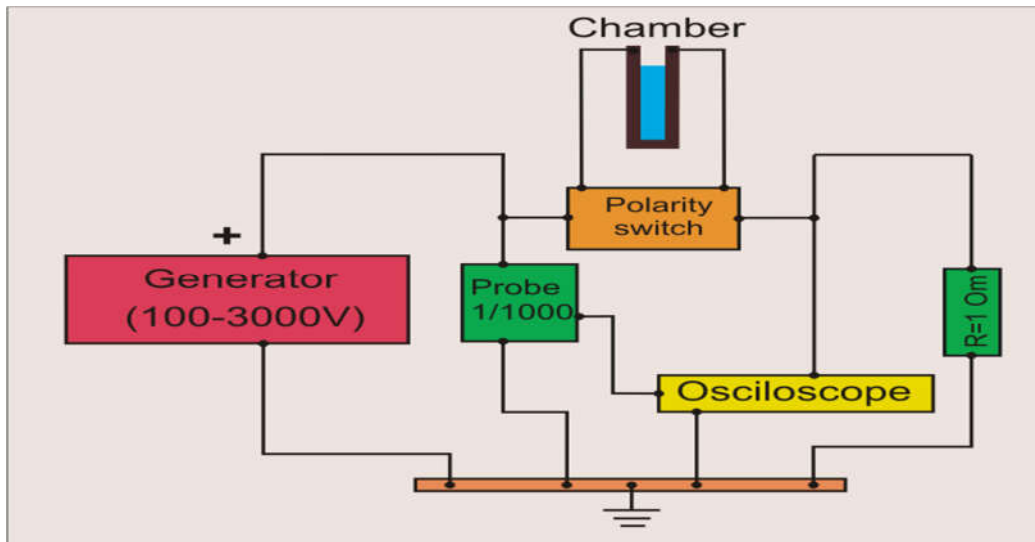


Figure S1. Schematic drawing of the high voltage generator and the electronic circuit

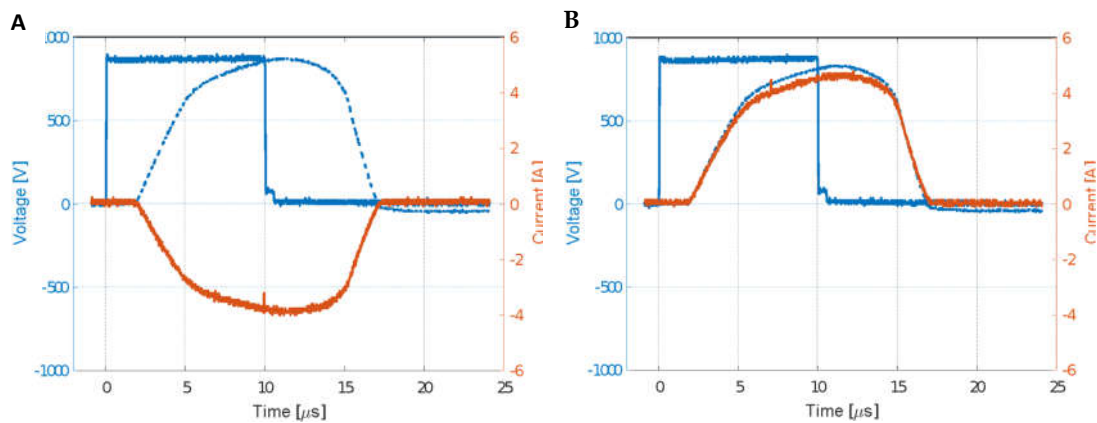
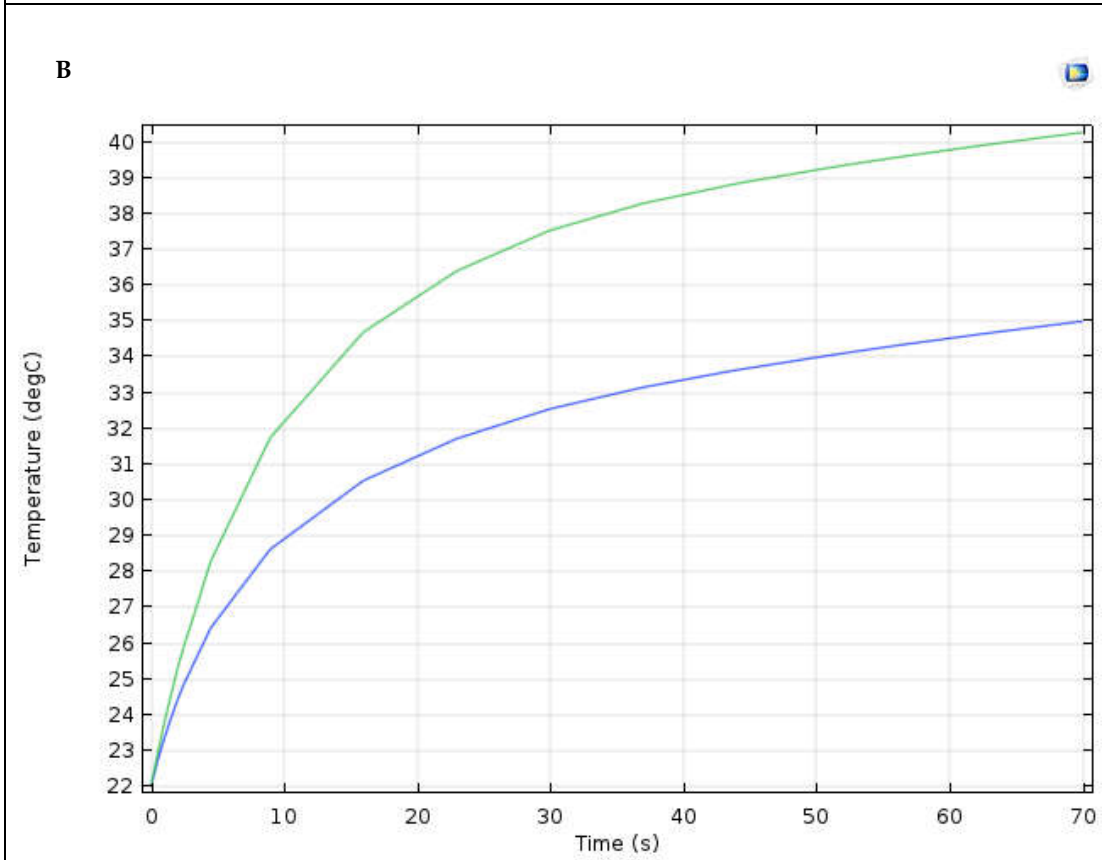
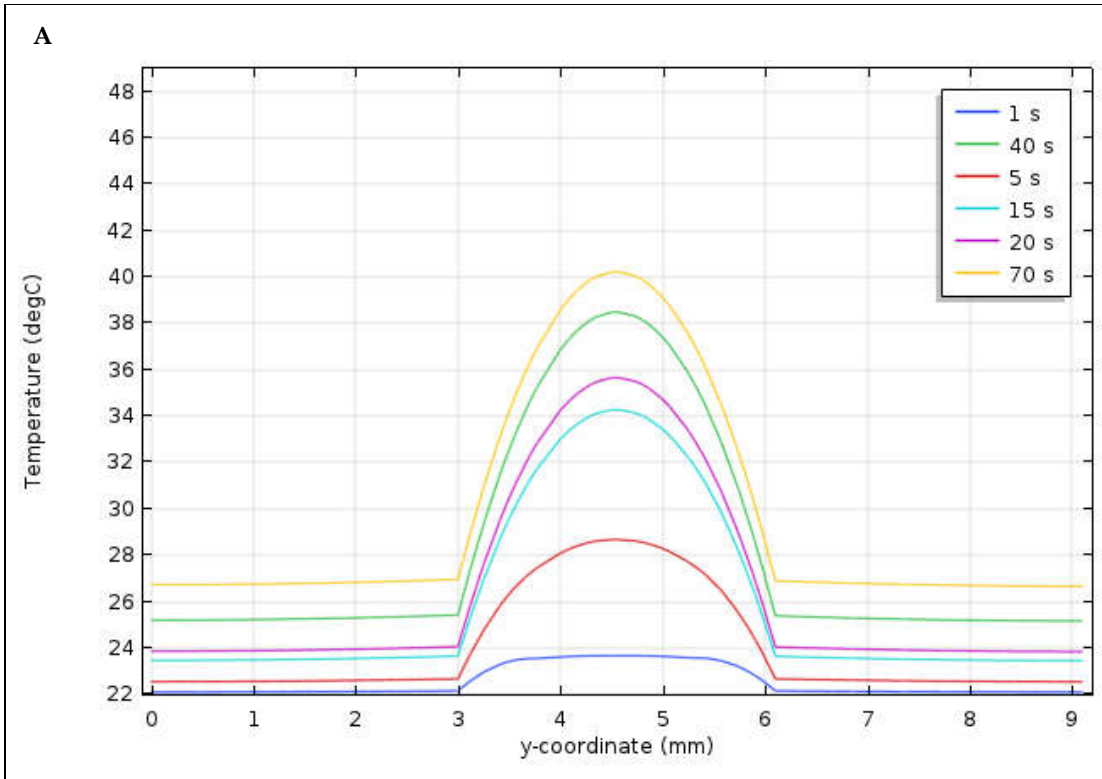
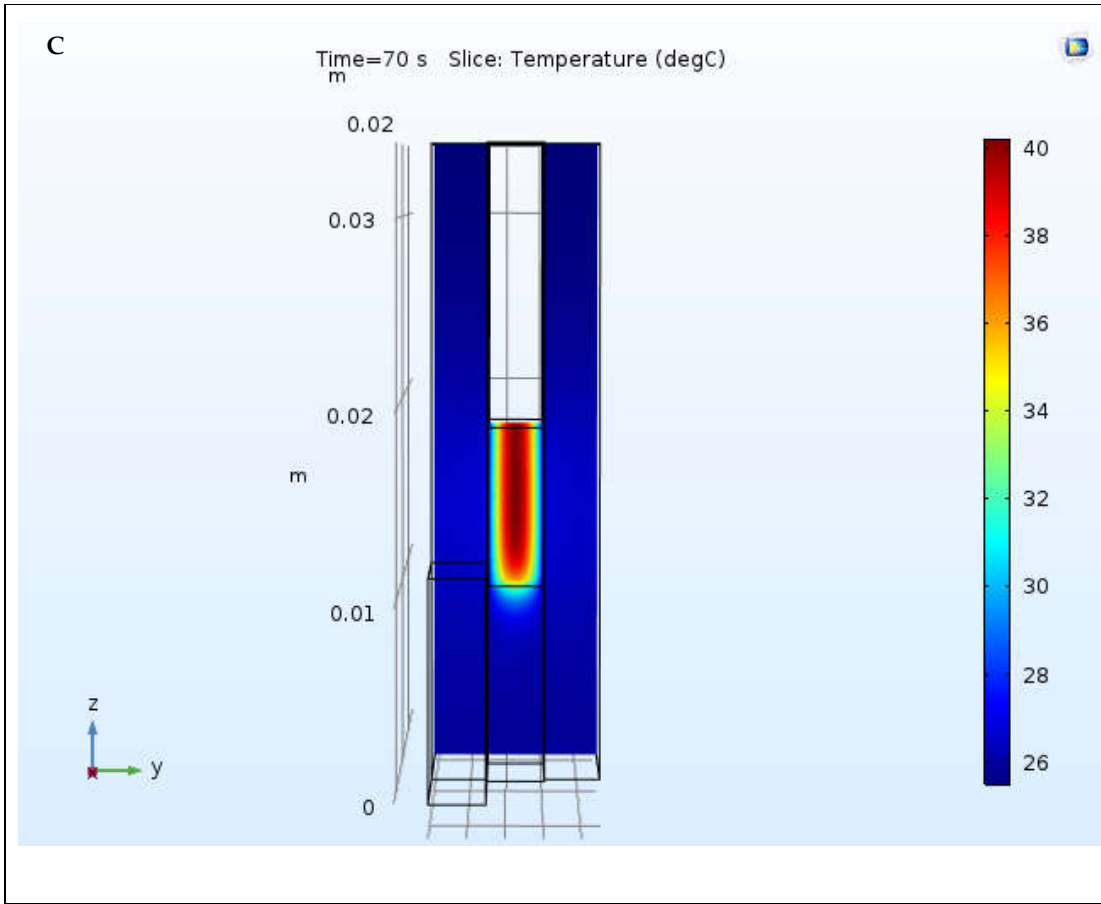
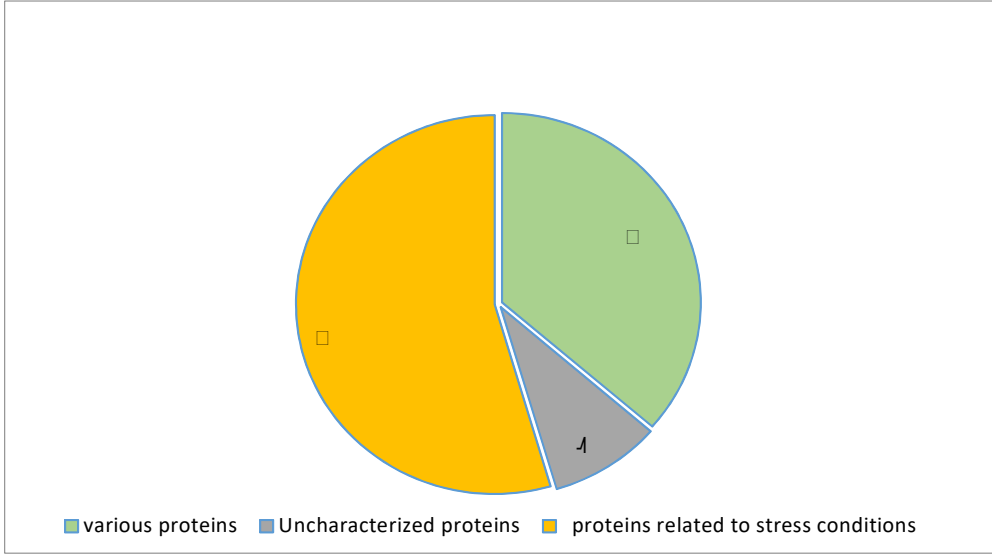


Figure S2. Potential and current time response during a pulse for two cases of opposite polarities (A and B). Voltage input (  $\text{---}$  ), Voltage output (  $\text{---}$  ), current output (  $\text{---}$  ).





**Figure S3.** Temperature in the electroporation chamber. Temperature profile at different times during the PEF treatment along the electrodes (A); Maximum temperature ( ) in the electrode sample system, and average temperature ( ) in the electrode sample system (B); Electrode sample system's temperature map after 70 s operation time (C).



**Figure S4.** Over-expressed proteins in PEF-treated *P. putida* F1 in BHI, compared to the non-treated sample.