

Supplementary Information

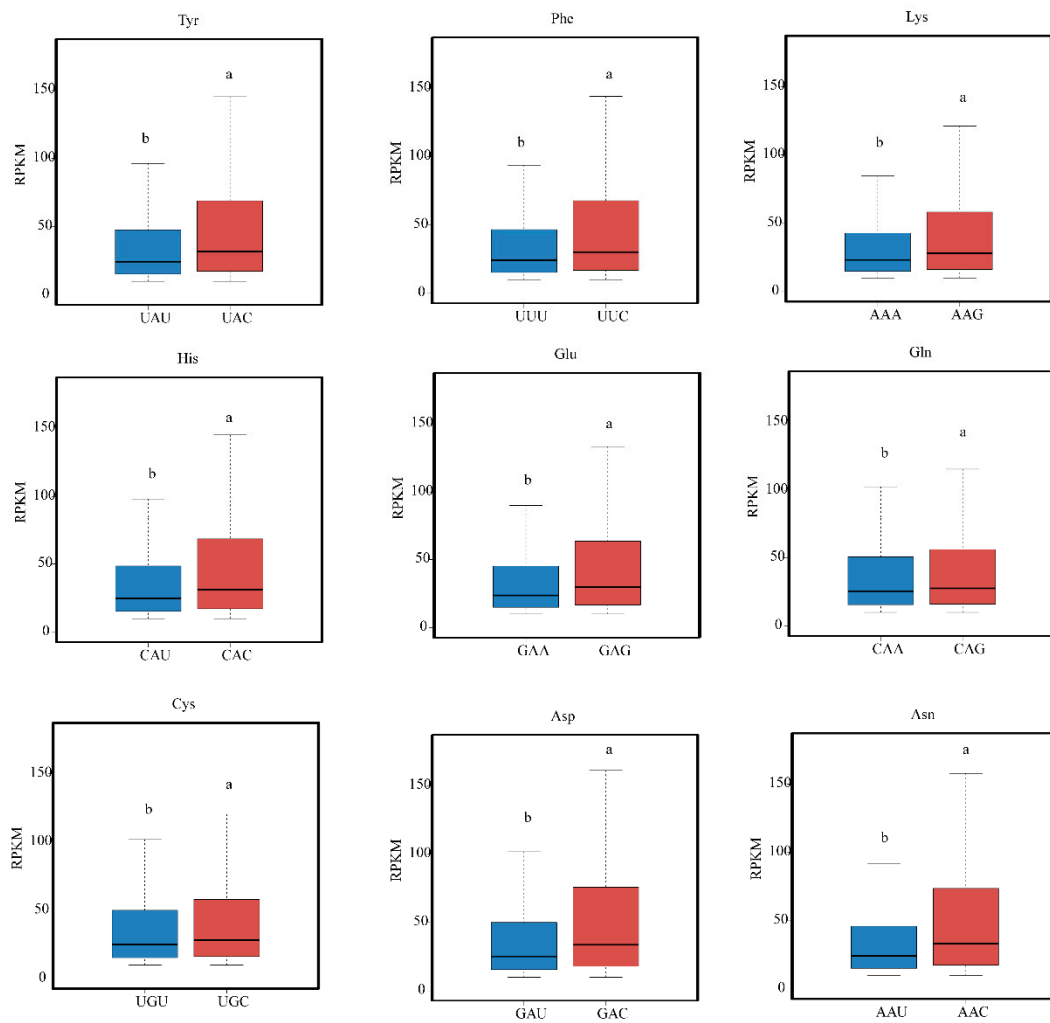


Figure S1. The relationship between RPKM value and synonymous codon preference in amino acid level (all amino acids with two synonymous codons, and lower a and b in boxplot meant the significant difference in statistical analysis).

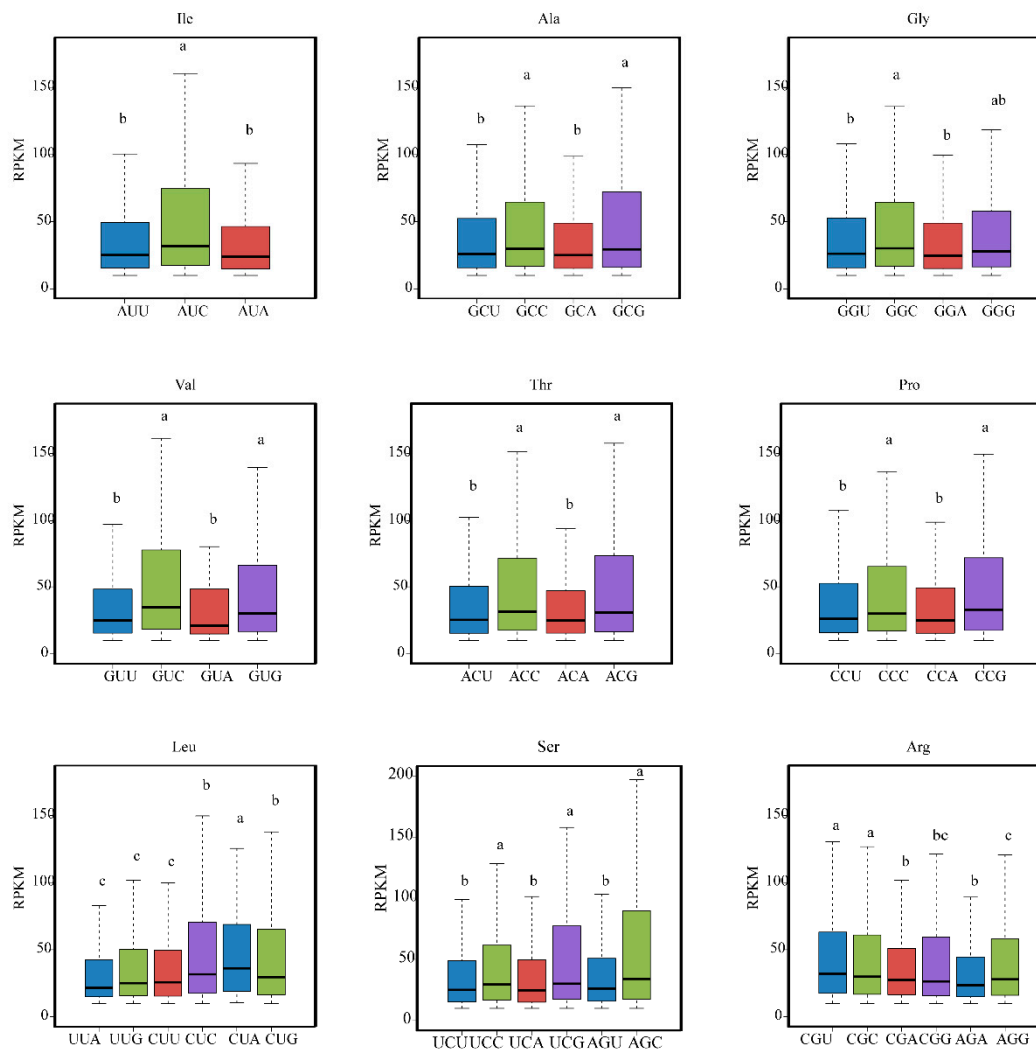


Figure S2. The relationship between RPKM value and synonymous codon preference in amino acid level (all amino acids with more than two synonymous codons, and lower a and b in boxplot meant the significant difference in statistical analysis).

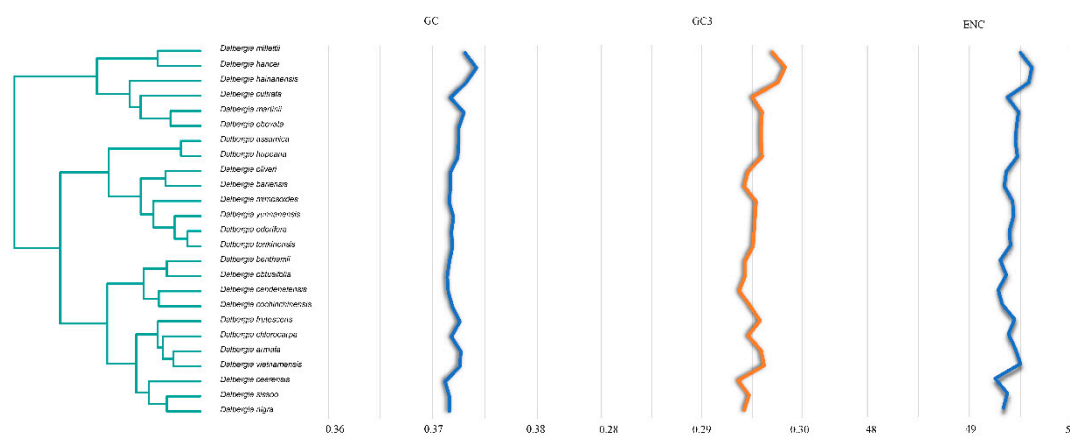


Figure S3. Clustering diagram based on RSCU values and its codon usage indicator

trend lines (GC content of chloroplast protein-coding sequences; GC3: content of G+C at the third position of chloroplast protein-coding sequences; ENC: number of effective codons).