

**Nucleotide sequence of chloroplast *atpE* and elongator *trnM*<sup>Met</sup> genes from *Arabidopsis thaliana***

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A lambda clone has been isolated from a genomic library of *Arabidopsis thaliana* as described (2). A 2.8 kb EcoR I fragment has been sequenced partially. The analysis of the sequence has shown that this fragment contains the chloroplast *atpB-atpE-trnM-trnV* gene cluster. Here, we present the nucleotide sequence of the *atpE* and *trnM* genes. The amino acid sequence deduced from the *atpE* gene sequence from *A. thaliana* displays 87.9% and 89.4% homology with its chloroplast counterparts from tobacco (3) and spinach (4) respectively. The 3' end of the *atpB* gene overlaps the *atpE* gene by 4 bp. The elongator tRNA<sup>Met</sup> gene shows only one nucleotide difference with its chloroplast counterpart from soybean and 5 nucleotide differences with its mitochondrial counterpart from *A. thaliana* (2).

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                                atpE
GAAGGCTACGAAGCTTAGAAAATGGAGAGTAAACTGAAGAAATGACCTTAAATCTTTGTGTACTGACTCCGAATCGAATTGT 80
atpB      M T L N L C V L T P N R I V
                                120
TTGGGATTGAGAAGTAGAAGAATCATTTTATCTACTAATAGTGGACAAATGGTGTATTAGCAAACCCGCGCGGATTG 160
W D S E V E E I I L S T N S G Q I G V L A N H A P I
                                200
CCACAGCTGTTGATATAGGTATTTTGACAATACGCCTTGCTAACCAATGGTTAACGATGGCTCTGATGGGCGGTTTTGCT 240
A T A V D I G I L T I R L A N Q W L T M A L M G G F A
                                280
AGAATAGGCAATAATGAAATCACTATTTTGTAAATGATGCGAGAGAAGAATAGTGACATTGATCCACAAGAAGCTCAGCA 320
R I G N N E I T I L V N D A E K N S D I D P Q E A Q Q
                                360
AACTCTTGAATAGCAGAAGCTAACTTGAGAAAAGCTGAAGGTAAGAGACAGACAATTGAGGCTAATCTAGCTCTCAGAC 400
T L E I A E A N L R K A E G K R Q T I E A N L A L R
                                440
GAGCTCGGACACGAGTCGAGGCTCTCAATACGATTJGATTTTGTAACTAGCTGACGTGTAAAAAAGATGTATAAAAAAAT 480
R A R T R V E A L N T I -
                                520
AGGATCGAAAGCAGTAAAAACAATAAAAATAAAAAAGCTGGTTACAAAAACTTATTAGACTACACCATGATCATGGTGT 560
                                600
CTAATAAGTTATACCTACTATTGGATTTGAAACCAATGACTCCTGCCGTATGAAAGCAATACTCTAACCACTGAGTTAAGT 640
atggatgatacctaacttggttactgaggagcgcatactctcgctatgagattggtgactcaattca
                                680
AGGTTATTTATCATTGTAAAGAGAAGGAAAGGGATACCTATCACATCGATAGGATTATAAATCCAATATTATTCTAAGCA 720
tcca trnM
                                760
ATACCAATAACAATGAGATCAAAGAGATATAATGTTGATGTAATATTAATCTTGACAAGAAATTATCTACATGAT 800
                                840
                                trnV
AAGATAAAATGTGTATCACAAACACAAGGGCTATAGCTCAGTTAGGTAGAGCACCTCGTTTACACGTCGCCCAAAGTTT 880

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Fig.: Nucleotide sequence of *A.thaliana* chloroplast *atpE* and *trnM* genes. The 3' end of *atpB* gene and the 5' end of *trnV* gene are underlined. The non-transcribed strand of the *trnM* gene is shown in lower-case letters. The inverted repeat sequence located downstream of *trnM* gene is indicated by arrows.

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