Nucleotide sequence of the 17S–25S spacer region from tomato rDNA

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Probing a tomato (Lycopersicon esculentum Mill) genomic library (kindly provided by Dr. R.W. Breidenbach) with 3' end-labeled cytosolic 5.8S rRNA, a ribosomal (rRNA) operon was cloned, mapped and partially sequenced by the dideoxy method in combination with unidirectional digestion with exonuclease III (1). The nucleotide sequence of a 1.1 kbp Eco RI - Eco RI fragment carrying the 3' end region of 17S (18S) rDNA, the first internal transcribed spacer (ITS1), 5.8S rDNA, the second internal transcribed spacer (ITS2) and the 5' end region of 25S rDNA is presented in Fig. 1.

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      1 GAATTCCTAG TAAGCGCGAG TCATCAGCTC GCGTTGACTA CGTCCCTGCC CTTTGTACAC ACCGCCCGTC GCTCCTACCG ATTGAATGAT CCGGTGAAAT
17S 101 GTTCGGATCG CGGCGACGTG GGCGGTTCGC TGCCCGCGAC GTCGCGAGAA GTCCATTGAA CCTTATCATT TAGAGGAAGG AGAAGTCGTA ACAAGGTTTC
    201 CGTAGGTGAA CCTGCGGAAG GATCATTGTC GAAACCTGCA CAGCAGAACG ACCCGCGAAC TCGTTTTAAA CACCGGGGGC GGCGCTCGCT CGTCGCGCGC
ITS1 301 CTCCCCCGTC GCCCGAGGGC GCAAGCTCTT CGGGCGACCA ACCGACCCCG GCGCGGAAAG CGCCAAGGAA TACTACAATC GACAGCCCTC CCCCTCGCGC
    401 CCCGTTCGCG GATCGTGCGG GGGGAAGCGC GCTGCTCTGT TAACACAAAC GACTCTCGGC AACGGATATC TCGGCTCTCG CATCGATGAA GAACGTAGCG
                                                                                                              m
5.8S 501 AAATGCGATA CTTGGTGTGA ATTGCAGAAT CCCGTGAACC ATCGAGTCTT TGAACGCAAG TTGCGCCCGA AGCCATTTGG CCGAGGGCAC GTCTGCCTGG
                                m
    601 GCGTCACGAT CGCGTCGCCC CTCGCACGCC GCAAGGCTTT AGCGCGGGGG CGGAAGCTGG CCTCCCGTGC GCCCCGAGCG CGCGGCCGGC CTAAATGCGA
ITS2 701 GTCCACGTCG ACGGACGTCG CGGCAAGTGG TGGTTGAAAC TCAACTCTCT CTTGTTGTCG CGGCTACAGC CCGTCGCGCG TCCGGACTCC CCGACCCTCA
    801 CCGCGCCTCA CCAGGCGCTC CGACCGCGAC CCCAGGTCAG GCGGGATTAC CCGCTGAGTT TAAGCATATC AATAAGCGGA GGAAAAGAAA CTTACAAGGA
25S 901 TTCCCCTAGT AACGGCGAGC GAACCGGGAA CAGCCCAGCC TTAGAATCGG GCGGCTCCGT CGTCCGAATT GTAGTCTGGA GAAGCGTCCT CAGCGGCGGA
   1001 CCGGGCCCAA GTCCCTGGAA GGGGCGCCGG AGAGGGTGAG AGCCCCGTCG TGCCCGGACC CTGTCGCACC ACGAGGCGCT GTCTACGAGT CGGGTTGTTT
   1101 GGGAATGCAG CCCAAATCGG GCGGTGAATT C
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Fig. 1. Nucleotide sequence of the tomato 17S-25S spacer region. Coding regions are underlined. The complete primary structure of tomato 5.8S rRNA was determined by chemical sequencing (2). Base and sugar modifications in the RNA sequence are indicated above and below the sequence, respectively. The 3' end terminus of 17S rRNA and the 5' end terminus of 25S rRNA are shown in analogy to those of rice (3) and have not been determined experimentally.

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