In chloroplasts, the majority of gene regulation occurs at posttranscriptional levels, mainly by RNA processing and control of RNA stability in higher plants (Deng et al., 1987; Mullet and Klein, 1987; Deng and Gruissem, 1988). Nuclear mutants in *Chlamydomonas* have been isolated that are deficient in the posttranscriptional regulation of chloroplast mRNA-processing events, suggesting that nuclear-encoded regulatory genes are required for posttranscriptional regulation of chloroplast genes (Kuchka et al., 1989; Sieburth et al., 1991). In addition, a spinach nuclear-encoded RBP has been purified from chloroplasts and the corresponding cDNA cloned. Depletion of that spinach protein from an in vitro chloroplast pre-mRNA-processing extract abolishes 3'-end processing, strongly suggesting that the RBP is involved in the reaction (Schuster and Gruissem, 1991).

In this report an *Arabidopsis thaliana* L. (Heyn) cDNA is described that was isolated by screening a λgt11 expression library for clones encoding proteins that bind to single-stranded DNA, a characteristic of RBPs (Table I). A 1050-bp clone, *Atrbp31* (*A. thaliana* RBP, approximately 31 kD), was isolated. Subsequently, a longer *Atrbp31* cDNA of 1208 bp was isolated that potentially encoded two polypeptides of 330 and 326 amino acids, both in the same reading frame. Each start codon was in a good consensus sequence. Data bank searches demonstrated that the encoded protein, *ATRBP31*, was homologous to the spinach RBP described above (Schuster and Gruissem, 1991), to three tobacco chloroplast-localized RBPs (Li and Sugiura, 1990), and to a maize RBP (Cook and Walker, 1992). The organization of polypeptide domains is the same in all of these proteins. Each contains a putative chloroplast transit peptide, a near- amino-terminal acidic domain, and two RNA-binding domains (Bandziulis et al., 1989) in the carboxyl two-thirds of the molecule. *ATRBP31* was 37 to 76% identical with the chloroplast RBPs in the RNA-binding domains. Based on the degree of similarity between *ATRBP31* and the known chloroplast RBPs, it is likely that *ATRBP31* is part of this family of nuclear-encoded chloroplast regulatory proteins.
LITERATURE CITED


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