INTRODUCTION

Chloroplasts contain elongation factors for protein synthesis different from the corresponding factors involved in cytoplasmic and mitochondrial protein synthesis. Previously, we have demonstrated that chloroplast elongation factor G is synthesized in the organelle in *Chlorella vulgaris* and that this factor, as well as elongation factor Tu (EF-Tu), are synthesized in spinach chloroplasts. In addition, preliminary results were presented suggesting that the two elongation factors are coded in spinach chloroplast DNA. We present now a more rigorous evidence that EF-Tu is coded in the organellar DNA.

RESULTS

When spinach chloroplast DNA is transcribed and translated in *vitro* in a system from *E. coli*, a number of radioactive bands may be separated by SDS-polyacrylamide gel electrophoresis. As shown in Fig. 1 (lanes 2 and 3), one of these bands has the same mobility of the large subunit of ribulose-1,5-bisphosphate carboxylase (LS) whereas another migrates in the same position of authentic EF-Tu (Tu). The intensity of the radioactive bands depends on the amount of chloroplast DNA present in the reaction mixture and, furthermore, such bands are absent from the control mixture.
Chloroplast DNA was transcribed and translated in vitro in a system from *E. coli* in the presence of [35S]-methionine. The products were separated by electrophoresis in 10% polyacrylamide gels in the presence of SDS.

1. preincubated *E. coli* extract, no addition
2. 

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   + 2 µg of spinach chloroplast DNA
3. 

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   + 4 µg of spinach chloroplast DNA