

Sodium chloride-induced conformational change in tRNA as measured by circular dichroism

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The effect of 0.01-1 M sodium ions on the conformation of the folded brewer's yeast tRNA^{Phe} was examined by circular dichroism method in the region 200-350 nm. The minimum peak at about 210 nm for tRNA solution with 50 mM sodium chloride showed a decrease in magnitude by 26-30% in comparison to that recorded for the solution of higher NaCl content. The depths of the peaks at 225 nm and 233 nm for two solutions with the lowest sodium chloride concentrations ($c_{\text{NaCl}} = 10 \text{ mM}$, $c_{\text{NaCl}} = 50 \text{ mM}$) were changed by 3-10 % relative to the those in the spectra of other samples, for the 260 nm maximum peak a decrease in height was 21-25 %. In the region 300-350 nm no significant difference was observed. The results point to a strong relationship between concentration of sodium ions and stabilization process of secondary and tertiary tRNA structure, which indicates the influence of sodium ions on stacking and base-pairing interactions.