Analysis of Y-shaped DNA preparation conditions using optical density measurement

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In the field of bioengineering, DNA has gathered enormous attention due to its inherent advantages. It can be built into a programmed structure using diverse protein tools in nano-scale precision. So there emerged Y-shaped DNA (Y-DNA), composed of three oligonucleotides. Its anisotropicity, ability to be modified and possibility to form sophisticated structures enabled Y-DNA to be utilized as a powerful coding material. In this study, we assessed three conditions which may influence on the Y-DNA preparation efficiency: Concentration, volume and dilution ratio. After Y-DNA synthesis, optical densities of the products were measured and compared with theoretical optimum values which were calculated by using Matrix Laboratory (MATLAB) program. Through such analysis, it will lead to a more effective preparation of Y-DNA.

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