

DNA Based Optical Nano-sensor for Hazardous Molecules Detection

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The prolonged use of toxic pesticides in agriculture lead to their introduction into the food chain through food and water which results in the interaction of these toxic molecules with DNA and could create some mutations and induce translocation leading to many diseases such as cancer. The aim of this research is to develop a Nano-biosensor which can detect chemical agents that interact with DNA and induce changes in its structure. The prime of this study is to understand the structure and properties of DNA and the chemical effects of toxic agents on its various properties and behavior. The detection approach is unique because it is based on the field enhancement from coupled AuNPs. Hence, any modifications, even very minute ones that are introduced due to toxic substances will induce large change in the field enhancement which makes it easy to be detected and processed further. So, this opens a possibility to fabricate a smart nano-sensor employing DNA as molecular probes that could be incorporated in water or integrated into glass substrates for the detection of extremely small amounts of organic pollutants.

References :

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