Nano anti-cancer drugs: Hope for future

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In spite of the curing properties of the drugs, these remain in our body tissues at very low concentrations for long time; leading to serious side effects. Similarly, some environmental pollutants exist at very low concentration in the earth’s ecosystem. The normal analytical instruments are not capable to detect them. Hence, we consider these species as absent, which is an illusion to the scientists and the society. The concentrations of some hormones, RNAs, DNAs, antibodies and other proteins are very low. Availability of infant plasma and cerebrospinal fluids is very poor. The proteomics and genomics researches are extremely difficult and need miniaturization of the separation techniques. Besides, the increasing economic pressure of the costly chemicals is a big issue globally nowadays. In view of these facts, there is big demand of nano scale separations with low detection limits. Due these facts the micro-total-analysis system (µ-TAS) has been developed and is being used in few laboratories of the world. These are nano liquid chromatography (NLC) and nano capillary electrophoresis (NCE) techniques. The proposed lecture will highlight the importance of these techniques with special emphasis on the fabrication of microchip, instrumentation of NLC and NCE, detection, sample preparation, analyses and future perspectives.