DNA barcoding: A new perspective in taxonomy
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Taxonomy, the science of naming and classifying organisms, is the foundation of biology. Identification and documentation of all forms of life on earth and proper nomenclature of species provide the framework for organizing biological information (Kumar and Jain, 2011). Existing morphology-based diagnostic approaches used by traditional taxonomists are often cumbersome and based on ontogeny. Barcoding organizations note that taxonomists have identified only 15 per cent of all living species over the past 250 years (Ebach and Holdrege, 2005).

DNA barcoding is a novel system designed to provide rapid, accurate and automatable species-identification by using short, standardized gene regions as an internal species tag (Hebert and Gregory, 2005). Small region of the mitochondrial COI gene is used in animals for such identification (Hebert et al., 2003). However, COI sequence is not appropriate in plants because of a much slower rate of Cytochrome c oxidase I gene evolution (Kress et al., 2005). Consortium for the Barcode of Life (CBOL)-Plant working Group has recommended a combination of chloroplast genes rbcL and matK as the standard two-locus barcode for plants (Ratnasingham and Hebert, 2007).

Just like Universal Product Code (UPC) which uses a unique series of lines for identification and tracking of a given product, DNA barcodes also uses a unique series of lines to identify a given species. These natural barcodes usually consist of 600 to 650 bp DNA sequence in which each nitrogen base is represented by established colours (Adenine=Green, Thymine=Red, Cytosine=Blue and Guanine=Black) (Hollingsworth, 2008).

DNA barcoding is advancing through the Consortium for the Barcode of Life (CBOL), Barcode of Life Database (BOLD), International Barcode of Life Project (iBOL) and Canadian Center for DNA Barcoding (CCDB). Their major barcoding projects are All Birds Barcoding Initiative, Fish Barcode of Life, Mosquitoes Barcoding of Life and Tephritid Barcoding Initiative of CBOL and Mammalian Barcode of Life.

DNA barcoding has emerged and established itself as an important tool for species-identification and phylogenetic studies in taxonomy. Apart from this, it has proved useful in protecting endangered animals, identifying agricultural pests and disease vectors, tracking adulteration in products and thereby sustaining environment.

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Biosynthesis of silver nanoparticles using Allium cepa extract and evaluation of their antibacterial activity
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Development of novel and environment friendly methods is an expanding area of research in the field of nanotechnology. Generally nanoparticles have been prepared by chemical and physical methods which are toxic, hazardous, costly and most importantly not environmental friendly. We have reported rapid, cost effective and eco-friendly method for the synthesis of silver nanoparticles using onion (Allium cepa) extract. The synthesized nanoparticles were characterised by using UV-Vis spectrophotometer, Dynamic Light Scattering (DLS) and Transmission electron microscope-energy dispersive spectra (TEM-EDS). The surface Plasmon resonance of silver nanoparticles was occurred at 413 nm in UV-Vis spectrophotometer. The size distribution of the particles was determined using DLS. Further nanoparticles were characterised by TEM to analyse the particles size and their morphology. EDS confirmed the elemental signal of silver and its homogenous distribution. The antibacterial activity of the nanoparticles was studied against E.coli dh5α by means of the growth curve and inhibition zone analysis.

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