FIELD OF INVENTION:

The present invention relates to DNA diagnostic kit. This in particular relates to identification of different microorganisms as well as genetic diseases.

BACKGROUND AND PRIOR ART:

Identification of microorganisms is traditionally made by the combination of microbiological, biochemical, physical, cell culture, in vivo animal experimentation and other methods. This necessitates different infrastructure, biologicals and specialized expertise for identification of different microorganisms causing infection and also genetic diseases like cancer. This is an expensive but unavoidable need of human, animals and plants. The constituents are short lived and being highly perishable, require cryopreservation. All these methods involve purification of strains of microorganisms by repeated culture and subculture which is time consuming, cumbersome and expensive. In spite of all the above limitations, these methods quite often lead to false positive or false negative detections, because of reasons like differential gene expression, presence of dead and debilitated microorganisms, insensitivities, interference growth, cross reactivity etc.

Molecular methods of detections are a modern alternative. DNA probe is a well known molecular method with varied applications like identification of infection in man, animals and plants, identification of genetic diseases, identification of recombinant clone, DNA fingerprinting, microarray etc. It is also being used extensively in forensic sciences.

Publication No. KR20120038430 illustrates a probe for detecting pathogenic microorganism causing diseases infected by sexual contact, is provided to ensure high specificity and sensitivity.

Publication No. KR20110137642 provides a DNA chip containing a probe which complementarily binds to 44 types of HPV nucleic acids, is provided to accurately diagnose complex infection of HPV and to predict cervical cancer

Publication No. CN101818213 discloses a gene chip for detecting human papillomavirus (HPV). It comprises of a solid carrier and a human papillomavirus for detecting probes fixed on the solid carrier.

Publication No. KR100968360 describes a method for diagnosing breast cancer caused by variation of the number of Her-2 gene replication is provided to confirm amplification by variation of the number of Her-2 gene and to diagnose breast cancer.

Publication No. CN101240335 provides a gene chip for detecting common pathogen in dairy. It comprises of a solid-phase vector and an oligonucleotide probe fixed on the solid-phase vector. It also provides a gene chip for detecting common pathogen in dairy, which comprises a solid-phase vector and an oligonucleotide probe fixed on the solid-phase vector, wherein the oligonucleotide probe includes DNA fragment

Publication No. CN101407837 describes a gene chip used for detecting blood pathogen and a kit used for detection. The gene chip includes a solid phase vector and an oligonucleotide probe fixed on the solid phase vector, wherein the oligonucleotide probe mainly comprises DNA segments selected from the 16S rRNA gene sequence.

Publication No. KR20080011257 provides a kit comprising a gene probe capable of detecting the 16SrRNA gene of common bacteria found as a waterborne pathogen, is provided to be able to detect the waterborne pathogen contaminated by the plurality of samples and identify the detected pathogen individually, thereby being widely and effectively utilized for preventing waterborne infectious diseases.

Publication No. KR20100006282 describes a multiplex kit and chip for determining pathogen identity and antibiotics resistance, are provided to accurately confirm pathogen of respiratory tract infection and reduction of antibiotics resistance rate.

Becton Drive,Franklin Lakes, USA provides BD Affirm™ VPIII DNA probe that offers a dependable, rapid means for the differential detection and identification of the causative agents for vaginitis: *Candida species*, *Gardnerella vaginalis* and *Trichomonas vaginalis*. The test features an easy-to-read visible color reaction that is more accurate than current microscopic methods for detecting the causative agents of vaginitis.

PathVysion provides a HER-2 DNA probe which is designed to detect amplification of the HER-2/neu gene via fluorescence in situ hybridization (FISH) in formalin-fixed, paraffin-embedded human breast cancer tissue specimens.

MetaSystems offers a wide range of high quality DNA probes routinely applied in genetics and allows nearly unlimited and targeted visualization of genomic DNA using either metaphase spreads, interphase nuclei, tissue sections, or living cells.

Life Technologies Corporation provides MicroSEQ® detection kit for simply, reliably and rapidly detecting Listeria spp. in food and environmental samples. The assay uses the polymerase chain reaction (PCR) to amplify a unique microorganism-specific DNA target sequence and a TaqMan® probe to detect the amplified sequence. This system comes with a PrepSEQ™ Nucleic Acid Extraction Kit.

However, the kits available in prior arts have remained as a high tech and an expensive affair dealing with highly degradable and perishable components requiring adequate expertise and five star laboratory facilities.

Therefore, the present invention provides a durable, inexpensive DNA diagnostic kit and a method for the identification of microorganisms as well as genetic diseases such as but not limited to cancer and under field conditions, as a sustainable technology.

OBJECTS OF THE INVENTION:

The principal object of the present invention is to provide a ready to use diagnostic kit provided in the form of dry powder with minimum aqueous stable components like the DNA probe.

Another object of the present invention is to provide a diagnostic kit which detects microorganisms directly from clinical samples without the need for time consuming and cumbersome strain purifications.

Yet another object of the present invention is to provide a diagnostic kit which is simple, inexpensive and uniform for identification of different microorganisms and genetic diseases such as but not limited to cancer.

Still another object of the present invention is to provide a diagnostic kit which can be used by semi skilled persons and even under field conditions.

Another object of the present invention is to provide diagnostic kit having extended self life under ambient conditions. The DNA probe is generated and detected by Quantum dots or other visible methods.

Yet another object of the present invention is to provide a diagnostic kit which dispenses the necessity of a large and different infrastructure and different expertise for identification of different infections and genetic diseases.

Another object of the present invention is to provide a diagnostic kit which detects microorganisms *in situ,* directly from biopsy or autopsy samples.

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At the outset of the description that follows, it is to be understood that the ensuing description only illustrates a particular form of this invention. However, such a particular form is only an exemplary embodiment and is not intended to be taken restrictively to imply any limitation on the scope of the present invention.

BRIEF DESCRIPTION OF THE INVENTION:

The present invention provides a diagnostic kit provided in form of dry powder with minimum aqueous stable components like the DNA probe in a ready to use state. The method involved is simple, inexpensive and uniform for all microorganisms and genetic diseases such as but not limited to cancer. The kit has extended self life under ambient conditions. The disclosed kit is capable of detecting almost every infection and genetic diseases such as but not limited to cancer, simply by changing the DNA probe sequence. Being uniform, it can be used by semi skilled workers like a Technician, in Reference laboratories or even under Field conditions. The kit has an added advantage of detection of microorganisms directly from clinical and *in situ* samples without requiring time consuming and cumbersome strain or gene purifications. It also dispenses the need for animal experimentations which is highly discouraged due to ethical considerations. The present invention dispenses the need of a large and different infrastructure and different expertise for identification of different infections and diseases in human, animals or plants.