Siddha System Of Medicine - Incorporating Informatics

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Abstract
The Siddha system of medicine is one of the traditional scientific medical system, has strong roots and unique in nature, reflecting the culture, tradition and heritage of India. Bioinformatics represents an advancement, growing area of science that uses computational approaches to answer biological questions. Siddha informatics is a science at a need of hour, dealing with the application of bioinformatics into siddha medication to provide a scientific platform to the traditional Indian medical system. Recently the biomedical research has shown a transformation from in-vivo to in-silico experimentation, which mainly relies upon bioinformatics. Human Genome Project paved a way to future commercialization of sequence data to develop informatics technology that transforms this data into information which is useful in diagnostic and therapeutic aspects. In this new way of transformation and commercialization the traditional system of medicine like Siddha needs innovation and renovation. Therefore, modern Siddha practitioners need training in Bioinformatics especially Siddha-Informatics is imperative to keep pace with the modern system of medicine. Incoporating Infomatics in Siddha is inevitable for better outcome and future. Comprehensive digitization of siddha system is obligatory for its better outlook.

Key words: Bioinformatics, Siddha, Biomedical research, Human Genome project, Siddha Informatics

Introduction:
The Siddha system of medicine is one of the traditional scientific medical system, has strong roots and unique in nature, reflecting the culture, tradition and heritage of India. Bioinformatics represents an advancement, growing area of science that uses computational approaches to answer biological questions. Siddha informatics is a science at a need of hour, dealing with the application of bioinformatics into siddha medication to provide a scientific platform to the traditional Indian medical system. Recently the biomedical research has shown a transformation from in-vivo to in-silico experimentation, which mainly relies upon bioinformatics. Human Genome Project paved a way to future commercialization of sequence data to develop informatics technology that transforms this data into information which is useful in diagnostic and therapeutic aspects. In this new way of transformation and commercialization the traditional system of medicine like Siddha needs innovation and renovation. Therefore, modern Siddha practitioners need training in Bioinformatics especially Siddha-Informatics is imperative to keep pace with the modern system of medicine. Incoporating Infomatics in Siddha is inevitable for better outcome and future.

Medicine is actually the science and practice of ascertaining the prevention, diagnosis, prognosis, treatment of diseases. The term "medicine" refers to a broad range of healthcare procedures that have developed to prevent and treat disease in order to preserve and restore health [1]. Medicine has been around for thousands of years, an area of skill and knowledge frequently having connections to the religious and philosophical beliefs of local culture. The growth and development of Western medicine, with evidences based on physiological and biochemical observations, is less than one hundred years old. The idea of homeostasis as described by Claude Bernard in 1879 emphasizes the importance of environmental stability and balance of elements within the body. According to him, imbalances in pH and electrolytes of body fluids, action of hormones, neurotransmitters, nutrition and cellular metabolism are root of diseases or discomfort in the body. Unlike the holistic approach of traditional treatment, western medicine frequently prioritizes quick fixes by concentrating on the diseased areas and suppressing symptoms.

Plants (herbalism), animal parts, and minerals are actually incorporated in Prehistoric medicine. Early records on medicine have been discovered from ancient Egyptian medicine, Babylonian Medicine, traditional Chinese medicine, Classical Chinese medicine, and ancient Greek medicine and Roman medicine. In India, the urgeon Sushruta described numerous surgical operations, including the earliest forms of plastic surgery[2][3]. Records of ancient Hindu medicine

are found in the Atharvana Vedam, Charaka-Samhita and the Sushruta-Samhita and in the ancient texts of Siddha and Ayurveda. These books reveal the ancient Indians had a rich knowledge of the use of medicinal plants. The primordial Tamil literature such as Thollkappiyam produced a lot of evidences of herbal medicines and medicinal plants utilization in their day to day life.

Conventional medical systems have always been crucial in supplying the world's medical needs. Medical systems that are believed to have originated in India or that were introduced to the nation from overseas and integrated into Indian culture are referred to as Indian systems of medicine [4]. Despite having its origins in India, the Indian medical system has spread throughout the country and is now found in several countries around the world. It evolved through an eternal process of transformation from its original Vedic form to the Modernized Indian System of Medicine. It is a well-known fact Indian Systems of Medicine are among the well known global traditional systems of medicine. An extensive vocabulary of herbal remedies and medicinal plants is found in Indian old codified medical systems and folk medicines. In last few decades, the popularity of herbal medicine products has increased worldwide, not only as part of conventional treatment strategies but also for health care management, and there is an increasing need to promote Indian traditional medicine globally. Adding to this, people been attracted toward traditional Indian herbal medicines from several developed and also developing countries. The solution for health problems by traditional system of medicine are highly remarkable on the global level. This can be well understood that approximately 80% of the population living in developing countries rely exclusively on traditional medicine for their health care needs [5]. India has the particular advantage and pioneer of having seven approved medical systems in this field. They are Siddha, Sowa Rigpa, Ayurveda, Unani and Yoga, Naturopathy and Homoeopathy termed under AYUSH [4]. A large number of modern medicines are derived from the plants used in Siddha, Ayurveda and other traditional medicinal systems. Certain contemporary unmet medical requirements can be addressed by siddha, Ayurveda, and other traditional herbal medicines. They can also serve as a foundation for the development of new medications. Standardization of drugs, Information addressal, quality control are the hurdles in the promotion of traditional Indian herbal products are Standardization of drugs, appropriate monitoring, Information and quality control. To address these issues, a number of legislative and promotional initiatives have been launched in recent years. Credible clinical trials, stringent research to determine the safety and efficacy, and quality control are necessary for herbal products.

Scientific integration of Indian traditional herbal medicine into evidence-based clinical management of diseases will be the better health care approach which will be essential to provide health benefits and facilities to people. The World Health Organization (WHO) describes traditional medicine as "the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness [6]. Practices known as traditional medicines include Ayurveda, Siddha Medicine, Unani, ancient Iranian medicine, Irani, Islamic medicine, traditional Chinese medicine, traditional Korean medicine, acupuncture, Muti, Ifá, and traditional African medicine [7]. Nowadays, the focus of medicine is on preserving overall health rather than just treating clinical illnesses. Adding to this medicine are stepped not only for preventing but also for enhancing quality of life and health more broadly [8]. Therefore, it is imperative that traditional herbal therapy be included into the current healthcare system. The criteria of bringing traditional herbal medicine in modern health care improves the knowledge of general health care, also offers a large benefit to society, it tenders reciprocal advantages to each system, increases the number and quality of practitioners, endorses the dissemination of primary health care knowledge, and is also helpful in providing basic health care to people in all parts of society. However, this is linked to a number of fundamental issues, including basic variations in medical systems, disparities in spirituality concepts, anxiety about the negative effects of traditional preparations, and deterioration in quality as a result of a lack of regulation and standardization [9]. Frequently, the system goes unrecognized because of its indigenous aspects. Solitary approach to the issue that makes it available to people who need to know about it is digitalization. This is crucial as a human technique cannot store and retrieve the vast amounts of data that computers can. This is useful for a variety of tasks now and in the future. Merely using software for information and decision-making or accessing internet resources could be considered digitalization or computerization. The scope of these developments could be clubbed together in to a domain known as ISM informatics. Ayurveda, Yoga & Naturopathy, Unani, Siddha, and homoeopathy are only a few of the numerous medical systems used in India that are collectively referred to as the Indian System of Medicine [10] termed as AYUSH [11]. The present article tries to make a review of the importance of implementation and recent developments of informatics in the field of ISM with a special focus on Siddhainformatics.

Siddha:

Siddha System of Medicine is one of the oldest and ancient traditional system of medicine, practiced in the peninsular part of India, The term Siddha means established truth / achievements and Siddhars were saintly persons who achieved results in medicine[12,13]. The system is propounded and developed by esoteric immortal personalities, 'Siddhars' who defied death, preached the philosophy of Siddha Medicine and theory of immortality. Siddha medicine has a long history that dates back several millennia. It was evidenced that eighteen Siddhars had aided in the creation of this medical method. It is thought that Agathiyar was the originator of Siddha medicine [14]. Siddha literature is written in Tamil and is primarily practiced in Tamil-speaking regions of India and outside. [15]

The Siddha System is largely therapeutic in nature. This is not only a system of medical science, but also a part of culture of the society and it employs a holistic approach in its treatment methodology such as diagnosis involves the study of person as a whole as well as his disease. This system of medicine has its own fundamental principles, anatomy, physiology, pathology, an extensive set of pharmacopoeia and various types of internal medicines and external therapies in practice, with specialization in latro-chemistry was advanced before the development of modern science. Both the basic and applied concepts and principles of this approach bear a strong resemblance to Ayurveda. This ideology holds that the human body, as well as food and medications, are copies of the universe, regardless of where they come from.

 Siddha believes that all objects in the universe including human body are composed of five basic elements namely, earth, water, fire, air and ether [16]. The food, which the human body takes and the medicines used are all made up of these five elements. The proportion of the elements present in the drugs vary and their preponderance is responsible for their actions and therapeutic results. This system considers the human body as a assortment of three humours, seven basic tissues and ninety six thathuvams (96 philosophy of humans) [17]. Siddha system of medicine largely emphasis on understanding body construction and interaction with diet and lifestyle "Food is medicine and Medicine is food", is the basic concept that believes in the principle of Food itself is medicine. The food is considered to be basic building material of human body which gets processed into humours, body tissues and waste products. This humoral equilibrium is considered as healthy and its disturbance or imbalance leads to disease or sickness. Siddha medical system system also deals with the concept of salvation in life which is the uniqueness of this system. In Siddha system, the chemistry instituted has been well developed into a science auxiliary to alchemy and medicine [18].

Siddha therapeutic formulations have always involved a significant amount of individualization or subgrouping—ideas that precision medicine in western medicine is starting to adopt. The products used for treatment have natural sources of origin such as mountain herbs and plants. Over 1,000 different compounds or mixtures have been described in various literatures, and anecdotal efficacy can be found in western texts. Medicinal plants are playing important role in providing health care to large section of population, especially in developing countries. The Siddha System of Medicine places emphasis on the fact that medical care must consider a patient's age, sex, diet, race, habits, habitat, mental health, physical condition, physiological constitution, and other factors in addition to the ailment [19]. This means the treatment has to be individualistic (personalized medicine), which ensures that mistakes in diagnosis or treatment are minimal. The Siddha medicine includes heavy metals mercury, silver, arsenic, lead and sulphur in their drugs with underlying principle of nanomedicines have been found to be effective in treating certain infectious diseases including venereal diseases. Practitioners assert that Siddha remedies are successful in lessening the really crippling issues that HIV/AIDS patients experienced [20]. Studies focusing on the effectiveness and safety of these medications are currently under investigation.

Except in emergency situations, the robustness of the Siddha system allows it to treat any kind of illness. Two of the Siddha medical system specialties are Muppu, or the universal syllabi, and Kayakarpam, a distinctive combination of medicine and lifestyle. Siddha system of medicine has become popular all over the world has made enormous contribution to the healthcare of the people, which ensures prevention and promotion of health / well being.

Health informatics:

Modern medicine applies biomedical sciences, biomedical research, genetics, and medical technology to diagnose, treat, and prevent injury and disease, typically through pharmaceuticals or surgery, but also through therapies as diverse as psychotherapy, external splints and traction, medical devices, biologics, and ionizing radiations. There is paradigm shift from its oldest version of "Guru-Sishya-Ashram" tradition to the modern day medical education system. The present scenario of Siddha teaching has undergone many changes as per the need of the day but important principles have remained unchanged [21].

Even though the system of medicine has reached globe attention its biggest problem in its accessibility are its aboriginal facets. In order to enhance its growing popularity it's high time to digitalize this system to place it before the global audience. This oldest and most traditional medical system has seen a number of attempts from many sectors to create user-friendly digital versions or software, but it still has a long way to go before it can keep up with the rapid advancement of time. This is highly essential because the world is getting digitalized and the capacity of computers to store and retrieve a large pool of data easily which is difficult in manual approach. Human approach in every field has changed after emergence of Computers and health care sector is also one of the preys. Siddha informatics can be considered as one of the tributaries of the broader umbrella of health informatics and the same will help to elucidate the former in a better way. Health Informatics is the result of evolution as planned philosophy, having its roots in the histories of information technology and medicine [22]. Siddha informatics is a judicious integration of Information Technology and Siddha, and integrating other disciplines of Indian medicine.

Broadly the development of health informatics in India can bring different benefits like instrument in continuing education, they enable health workers to be informed and trained in advanced medical and health sciences; also they deliver health services to the poor at rural and remote locations, and can increase the transparency and efficiency of governance, which in turn should improve the availability and delivery of publicly provided health services [23]. ICT (information and communication technology) usage in Siddha will improve communication between Siddha and modern medicine [24]. Health informatics or ISM informatics or Siddha informatics, the discipline becomes purely

technical in nature which is a judicious blend of information and communication technology and health in the present context Indian System of Medicine.

Bioinformatics
Various technological fields such as bioinformatics, functional genomics and micro array (DNA or protein chips) have rapidly come into the limelight and industries utilizing genetic information of humans and other organisms have emerged as leading industries [25]. The Human Genome Project has made a major impact on the identification of potential drug targets, and these targets have influenced the design of specific screens for therapeutic drugs [26].
Potential therapeutic targets such as Alzheimer's disease, angiogenesis, asthma, stroke, and cystic fibrosis, which are human genome specific, may continue to dominate technology development [27]. Also most common diseases and many drug responses have been found to be influenced by inherited differences in our genes. Thus, studying generic variance can improve our understanding and treatment of diseases. If a region of the human genome is sequenced from two randomly chosen individuals, 99.3% of the examined DNAs are identical [28]. Much of the genetic variation between individuals lies in differences known as single nucleotide polymorphisms (SNPs). As SNPs constitute the bulk of human genetic variation, they can be used to trace inheritance of genes in traditional family-based linkage studies. By epidemiological association, SNPs can also be used to test susceptibilities to prevalent diseases such as heart disease, cancer, and diabetes. One of the most difficult challenges faced by physicians and scientists at present is to establish the link between gene variations and a disease. Of the 1.4 million SNPs currently on the public map, only 60,000 are located in protein coding regions, also called exons, and relatively few of these transform into amino acids [29]. The SNPs that change the amino acid sequence, and variants in gene regulatory regions that control protein expression levels, are most likely to have a direct impact on the protein product of a gene [30]. Advances in SNP research promises to change current practices in clinical trials [31]. Pharmacogenomics, a new area of customized medicine where medications and preventative measures are specially made to fit a person's genetic profile, will surely be founded on the SNP effort. The bioinformatics tools can be of great help in this regard including the studies of 1.4 million SNPs stored in the public domain. In this context, our ancient siddha system of treatment needs some renovation and research to keep pace with the modern development in the field of medicine. The advancement of personalized medicine can be bought into siddha system by the expanding the ideas such as Body constituent analyzer and Biotyping detector according to siddha concepts. The keynote is that National Library of Medicine's MEDLINE database was the first database to be available on the World Wide Web with free of charge and it is the world's widely and heavily used medical database. MEDLINE is unique in that each reference to the medical literature is indexed under a controlled vocabulary called Medical Subject Headings (MeSH) [32]. These headings are the keys that unlock the medical literature [33].
MeSH increases the multiple utility of the MEDLINE database and makes it possible to search the medical literature. NLM has been providing health information to consumers through another website, MedlinePlus. It provides preformatted searches of MEDLINE and also access to information produced by the National Library of Medicine, also links to information about more than 650 illnesses and ailments, compiled by National Institutes of Health and the reliable sources. Updating of the database is done on daily basis. MedlinePlus become a major web resource for health information for those impacted by health disparities so that they will have access to the same quality health information as the rest of the population. Although there have always been doubts about the scientific validity of Siddha medicines, recent developments, including the disclosure of clinical trials and research findings, have led to a greater regard for herbal products among the public and researchers alike. Actual problem that lies at present is, most of the Siddha physicians are not trained in biomedicine, medical informatics and computation which has become an essential part in most Western Schools of Medicine.
The area of medical informatics deals with gathering, collecting, and utilizing data in the healthcare industry; it typically involves the use of information technology. It is a broad, multidisciplinary field, covering electronic medical records, access to knowledge-based information and digital libraries, digital imaging systems, telemedicine, clinical decision support, and many more [34]. So there will be a great divide between the modern system of medicine and their traditional knowledge of Siddha in treating a disease. In fact, the principal obstacle impeding effective health care in India and many parts of developing countries is lack of new knowledge in the field. Now the impact of computer technology is so extensive that it is no longer possible to think about effective health care without computersn actuality, the majority of researchers now spend more time computing, or in silico, and less time in their "wet labs" collecting data. As a result more and more researchers find themselves working in teams to harness the new technologies. The digital approaches may be the standard for biomedicine in the future. The Siddha Research Institutes therefore must uncover ways and means to discover, encourage, train, and support the new kinds of physicians and scientists needed for tomorrow's world. To make optimal use of medical informatics, Siddha researchers need, first of all, the expertise to marry information technology with ancient system of medicine in a productive way. The need of the hour is for an intellectual fusion of Siddha, biomedicine, and information technology. The traditional practitioners can no more keep themselves standoffish from the recent discoveries in these fields. Many methods are needed to understand the complex behavior of biological systems, meaning that the future will involve a mix of genomics, interatomics, proteomics, medical informatics and bioinformatics.

Example of few bioinformatics and related tools are tabulated [35, 36, 37, 38]

Molecular Sequence Alignment Tools
LALIGN ClustalW
DbClustal
YASS
JDotter
PROBCONS
Dotlet
PRALINE
CoreGenes
SCAN2
MARNA
ParAlign
EMBBlast
PipeAlign

Bioinformatics Tools
BLAST
FASTA
ClustalW
RASMOL

RNA Structure prediction tools	Protein Structure prediction tools	Microarray analysis tools
MirAlign	STRING	CIMminer
ERPIN	JPred	LeFEMiner
Mireval	DAS	SmudgeMiner
Mirscan	TMPred	MatchMiner
RNAmicro	Molsurfer	SpliceMiner
ProMir	SPLIT	CellMiner
RNAsoft	OCTOPUS	GOMiner
XRNA	SWISS MODEL	AffyProbeMiner

Siddha informatics

This new sphere of influence will uplift the system to Next generation. Bountiful works are happening in the field of AYUSH education, teaching and training. The Centre for Development of Advanced Computing played a vital role, of advancement and the development of various tools of AYUSH. But their reflection in the case with practice is still a query.

In Siddha the available resources such as

- National Health portal (siddha)
- Open Government Database (siddha)
- Indian Medicinal Plants Database (siddha list) NMBP
- Ayush Research Portal (Siddha)
- TKDL (Siddha)
- CCRS – Central council for Research in Siddha
- NIS - National Institute of Siddha (The institute of national importance)
- Literary Research Unit, Tanjore
- Research database in Siddha system
- Database on Medicinal plants in Siddha system
- Colloborations with reputed institutions such as The Tn Dr MGR Medical university, MMRC, Tanuvas, CTMR
- Patency process on few countable products
- Reputed Siddha Institutions/councils/Boards MoU with other research institutions and Universities.

Siddha Institutions under collaborative research work with Multidisciplinary Institutions

The goals such as Augmentation of Literary Research, Scientific validation of Siddha medicines and Siddha procedures such as Varmam, Thokkanam and other non- invasive and simple techniques to treat diseases. Increasing the source of Research and development of consultancy projects, Patenting of drugs and processes and other supports to R&D industry, Creation of international and inter-agency collaboration to improve and disseminate research. To meet the demands of modern world the initiation, incorporation and adoption has to be accelerated and should be taken in a

larger scale. One of the Milestone of siddha enrichment is, by the Traditional Knowledge Digital Library (CSIR - TKDL), the platform which has information on history, classification, and special therapies of siddha medicine [39]. It should be noted here that database management is not the only role of Bioinformatics. The National Institute of Health (NIH) defines Bioinformatics as research, development, or application of computational tools and approaches for expanding the use of biological, medical, behavioural or health data, including those to acquire, store, organize, archive, analyze or visualize such data. Other areas of Bioinformatics are: sequence alignment, protein structure prediction, protein-protein interaction, systems biology, pharmaco-genomics, proteomics, gene mapping in pedigrees and population studies and molecular modelling. This implies computation is a very important part of Bioinformatics. Now health care has become an information-based science.. This is addressed by Medical informatics- and emerging area in the field of medicine It is the domain that focuses on the communication, information processing, and cognitive demands of medical practice, teaching, and research [40]. The concepts in Siddha system of medicine is different from modern system, hence the medical informatics may not be able to address all the emerging areas of Siddha though the aim may be same, i.e., to give relief to the patient and improve their quality of life. Therefore, Siddha informatics—a synthesis of Siddha and Bioinformatics, unifying with inputs from the contemporary medical system, including clinical trials, is urgently needed. It is the use of IT in medical research, patient care, and Siddha studies.

Confronts ahead:
The biomedical researchers have data in profuse quantities-from the Human Genome Project, clinical trials, statistics, population genetics, and imaging and visualization research etc . The emerging technology of bioinformatics helps researchers gather and standardize data from basic medical research and computer modelling, to combining and manipulating databases to tease out the knowledge they contain. The goal is to bring the system of interoperable databases that will be available for clinical physicians and researchers. As more information from clinical trials are available, the need for standardization and interoperability of clinical databases will increase dramatically. Treating a disease could be significantly improved by combining fresh insights from genetic research with knowledge gleaned from clinical trial data.
Therefore, both the collection of the information, and the creation of the tools for storage, management, and access are equally and increasingly important.

Siddha informatics should include:
- Implementation of health informatics tools/ softwares
- Developing more resources of E books and Journals
- Developing & Advancing E learning portals
- Digitalized learning methods
- Developing more Databases on Learning and Research
- Training in modern scientific tools
- Computer based Learning, teaching & training
- Computer training in curriculum
- Advancement of ICD
- Utilization of AYUSH portals
- Implementing technical learning methods
- Computer based medical information retrieval
- Computers in Clinical Laboratory
- Computer assisted medical decision making
- Hospital information system
- Clinical information system
- Nursing information system
- Dietetic information system
- Computerized patient records
- Computerized prescriptions for patients
- Computer Aided Patient Health care Education and information
- Telemedicine
- Formulating IPR and Patent
- Computer Assisted Drug Discovery and Development
- Computer Assisted Instruction in Medicine
- Application of Traditional knowledge digital library
- Integration AYUSH curriculum
- Integration with Modern curriculum
- Interdisciplinary & Intradisciplinary integration

- Networking siddha clinics under single platform
- Networking Siddha Medical colleges and Hospitals
- Teleconsultation and Telemedicine at an expanded level
- Telemonitoring,
- Tele diagnostics
- Links for emergency and consultant services
- Electronic Medical Records
- Digitalized pharmacovigilance system
- Computer-Aided Learning in the Medical Curriculum,
- Visualization Technology for Visualizing the Human Anatomy.
- Networks for linking hospitals, clinics, medical schools, universities, researchers and healthcare providers to share data via Geographic Information Systems (GIS),
- Remote Information Services and Decision Support Tools for Patient Care.
- Telepresence Workstations in Medical Education,
- Standardized External Therapies Digital Visualization
- System assisted modern medical tools in manual external therapies
- Collaborative Programs in Computer Assisted Protein Engineering
- Advanced Computing Applications in computer aided Drug Design.
- Use of Digital Radios and Personal Communication Services (PCS),
- Wireless Information Networks,
- Emergency Communications and Remote Monitoring
- Links with Major Medical Centers for Remote Analysis of Diagnostic Data.
- Contribution and Registration in IPR portal
- Incorporation of computational biology
- Application of Artificial Intelligence

CONCLUSION:

 Present era is appropriately called as the digital era. Computer has immensely influenced human life. Computer has to do with every walk of human life so also the domain of medicine and health care. While medical informatics has expanded rapidly, ISM informatics has not experienced or initiated the same level of growth. The integrative approach from both the field of Siddha and Information Technology blend will definitely be of great help in different facets of Siddha system, be it clinical medicine, biomedical research or information storage and retrieval. The increased adoption of these systems due to their effective and safe treatments for numerous human ailments has once again made the development of ISM informatics imperative. The proliferation of websites offering knowledge, instruction, and communication on topics pertaining to Indian medical systems has been extensively noted; nevertheless, the veracity of these platforms is questionable and requires oversight by the government. Once more, there are numerous uncharted territories that warrant investigation and refinement to enhance the accessibility, functionality, and, most importantly, efficacy of Indian medical systems. Developing a structural database structure and indexing for siddha medicine system will best option to digitalize. There is a necessitate for more Health informatics tools to be used in the health care either in the Siddha system of medicine. The health history of the patients should be documented and recorded for future analysis and for the cost effective appropriate treatments for diseases. As the personalized medicine is the future now, So a strong patient database needs to be developed. The need of hour is to educate and train our young Siddha professionals in this era of electronic revolution, the Siddhainformatics should be taught as a part of the curriculum in the Bachelor's and Master's degree level. In nutshell, the awareness and rapidity towards the applicability of siddhainformatics in health care sector will enlightens the sidddha system in global stadium. Comprehensive digitization of siddha system is obligatory for its better outlook. This study limits on not addressing all the areas of siddha medicine and bioinfomatics and recent advances incorporated as updated.

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