

Status Quantification of Ayurveda Fundamentals in Human Body by Newly Invented “Ayurveda Tridosho Scanner “ diagnosis machine technology with Artificial Intelligence for acquiring data

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Abstract - In Ayurveda medical science, it is necessary for the Ayurveda doctor to follow the established principles of Ayurveda, while to treat the human body. Ayurveda medical science is based on the basic principles of Dosha, Dhatu, Mala, Vikruti, Prakruti etc. The established principle of Ayurveda is that when there are normal to abnormal changes in these Doshas, Dhatus, Mal etc. then diseases arise. Therefore, before treating a patient, it is necessary to find out status quantification of the extent to which all these exist in the human body. After finding and concluding status quantification of Ayurveda Principles i.e. Dosha, Dhatu, Mal, Vikruti, Prakruti etc medical work can be done accurately and without any deviation. Since ancient times, knowledge of above said topics in Ayurveda has been done keeping in mind the five point diagnosis method, seven point diagnosis method or ten point diagnosis method. These are described in Ayurveda scriptures. Later, about 800-1200 in between years ago, Radial Nadi test was started which is still in practice. Evidence based status quantification of the principles of Ayurveda can be done through Ayurveda Tridosho Scanner System. It is called A.T.S. system and it is being used for diagnostic knowledge in patients from more than last 25 years. The machine quantifies the status of Ayurveda principles including diagnosis in 5 sections, through using its Artificial Intelligence programming with print report facilities.

Keywords - Tridosha, Vata, Pitta, Kapha, Dosha, Dhatu, Mal, Rog-karak, Ayurveda Tridosho Scanner machine, Quantification of tridosha, Status quantification of Ayurveda principles, Ayurveda Scanning machine, Ayurveda Nidan Machine

I. INTRODUCTION

Ayurveda Tridosha Scanner System equipment is specially designed for status quantifications of the root principles based on Ayurveda medical science. For the treatment of any patient, it is very important for the Ayurvedic doctor to know in what proportion the Tridoshas, Dhatus, Malas etc. are present in the patient's body and whether all these are in normal state or less than normal state or more than normal state. Mitigation of the defects or bringing them back to normal state is the basic principle and function of Ayurvedic medicine. In the traditional Ayurveda's diagnostic knowledge and efforts for disease determination, it has been described in the Ayurvedic medical scriptures how the diagnostic knowledge can be done through five methods, seven methods and ten methods. Another method in Ayurveda is based on the defects. It has been established for testing which is called “Nadi Pariksha. It is believed that the method of pulse testing is very ancient, but the details of testing done in this way are not found in the ancient texts of Ayurveda like Charak or Sushruta. The official description of pulse test is first found in the first volume of the Ayurvedic text “Bhav Prakash”, which was written by the great master of Ayurveda, Bhav Mishra, about 700 years ago. It was only after the publication of this book that Ayurveda experts got information about the newly invented method of pulse testing. Ayurveda scholars speculate that due to the country, time and circumstances not being favourable, no Ayurveda expert may have composed any book for a long time, but some people do not believe so. On the contrary, many scholars are of the opinion that due to the attacks of foreign invaders and burning of libraries, it may happen that the manuscripts written with new ideas, sequentially according to time, may have been destroyed in some ill-conceived way or the other. But today's reality and evidence is that the knowledge of pulse testing method came to the Ayurveda world only through the book Bhav Prakash written by Bhav Mishra. Ayurveda Tridosho Scanner A.T.S. technique is the third way to detect the Tridosha and other principles apart from these two as early said, is used to solve the problem of Nadi Parikshan, as

this machine analyse the Seven Doshas, Seven Dhatus, Three Malas of Ayurveda along with 16 systems of the Human body. The status is copied in Data by machine and this Data is printed in the form of a report.

II. OBJECTIVES ; GENERAL

Till now only two methods are described in the scriptures to detect the Tridoshas. The third and latest method is to detect the Tridosha etc. when I was doing an integrated study of Phytotherapy and Homeopathy and Allopathy in the hospital at Deutschland Krankenhaus fuer Naturheilwissen, Munich, Germany in the year 1973, there were many such equipments used for treatment, which were used in the diagnosis and treatment of diseases. Used to do. One day, in this hospital of Germany, an idea came that whether the status of Tridosha principles of Ayurveda can be quantified? Electro Cardio Graph [E.C.G.] machine was used in the hospital to check heart and pulse rate and electrolytes, minerals etc., hence it seemed appropriate to use Electro Cardio Graph machine to determine the Tridoshas of Ayurveda. After coming back to India from Germany, efforts continued to detect Tridosha through E.C.G. machine. After years of tireless efforts, it was successful and this technology was named Electro Tridosho Graphy AyurvedaScan [E.T.G.A.S.]. Between the year 2004 and 2008, the National Innovation Foundation, Ministry of Science and Technology, Ministry of Health, Government of India conducted intensive testing of this technology with the team of Department of AYUSH, Central Council for Research in Ayurveda Sciences, Central Research Institute of Ayurveda New Delhi. Which included many institutes like AIIMS, IIT, Lady Harding Medical College and Hospital, Ayurveda and Tibia College, National Institute of Ayurveda etc. In all these institutes, tests were conducted continuously at regular intervals. After the completion of the trials in 2008, the Government of India mainly gave three suggestions [1] For the development of this technology, instead of using ECG machine, a separate machine should be made for it [2] Data obtained for status quantification of Tridosha through ETG technology. It may be right or it may not be right, it is very difficult to say or tell at this time [3] A new machine should be made based on this technology and there is a need to do more and more continuous research work on this new machine. [4] If principled diagnosis or disease diagnosis is done by this technique and from the data set obtained from it, even a single diagnostic formula emerges out to be correct and accurate, then it will be a great achievement for the diagnostic knowledge of Ayurveda medicine.

II.1 Idea for manufacturing of Ayurveda Tridosho Scanner

The confidential report [year 2009] prepared by the experts of the Department of AYUSH, Government of India, after the all procedural relevant applicable tests of Electro Tridosha Graphy conducted in various departments with standard norms were completed in between the years from 2004 to the 2008. They have been mentioned in the form of suggestions which have been written above. To fulfill the objectives of the given suggestions, efforts were started from 2009 and the scanner was manufactured in a self-funded manner by forming a team of I. I. T. Kanpur and Sunrise Institute of Science & Technology, Unnao and some other professionals. This scanner is manufactured in year 2010 and is being tested continuously from 2010 till present. About 10 years ago, Artificial Intelligence was used in the manufacturing of machine, due to which its usefulness was proved better.

II.2 Base and construction of A.yurveda Tridosho .Scanner Machine

In the construction of Ayurveda Tridosha Scanner, different types of environmental conditions, many untouched, unknown dimensions, unseen, unanticipated things that come in between the medical practice of Ayurveda therapy, patient examination and diagnosis etc. Problems and hurdles keeping in mind of the practical difficulties in practice, it was decided to make this machine foolproof. Efforts for making this machine were started from 2009. This machine was manufactured under the leadership and supervision of Professor Dr. Phool Singh Chauhan of Indian Institute of Technology, Kanpur, India. Trials of the machine were started in 2010. Changes were made in its hardware and software from time to time as per requirement. This technology is not yet patented, so an attempt has been made to provide limited information about it. The equipment mentioned below has been used in the manufacturing of the machine.

Materials used in manufacturing the machine;

- 1- Selection of suitable development board. These are changed from time to time to improve the utility of the machine and to get better output. Currently Portenta and Raspberry pi developmental Board models are being used.

2- Sensor; few number of sensors have been used in this machine, which have been self developed & fabricated according to need.

3- Programming language C, C++, Python is used.

4- Cabinet, Components etc used as and when in need as per equipment requirement.



Fig – 1 Front view of Ayurveda Tridosho Scanner



Fig – 2 Showing Sensors & Electrodes & accessories

II.2 Selection of site for acquiring signals from machine

Ayurveda Tridosha scanner requires data to be collected to test the pulse. For this, those places of the patient's body are selected from where they are connected to the machine to receive the signal. The locations of the body selected for pulse testing are selected keeping in mind the requirement of the sensor, the method of sensing and the capacity of the sensor. Generally seven sensors are used for this.



Fig - 3 Placement of sensors

Air from the environment enters between the sensor and the skin of the body, due to which the signals received by the machine are not very clear and many flaws arise in them. Signals are highly sensitive and these signals are analyzed and synthesized by the machine according to programming. Therefore, the stronger the signals, the better the results.

To correct this mistake, a couple medium is required between the skin and the sensor or electrode of the machine. For this, at our laboratory, specially developed water-gel is applied on the skin and electrode or sensor. Later, the electrodes. Sensors are carefully placed on the selected area of the body with light pressure. In this gel some minerals have been mixed for best transmission of signals without any harm to skin or body.

Generally below mentioned sites of human body are used frequently;

- 1- Both Right and left hand over the Radial Pulse
- 2- Middle finger of left hand

Placement of sensors are generally used over the radial pulse in this machine and another sensor in middle finger of the left hand. The purpose of placing sensors or electrodes in the radial pulse site of both the hands is that the Vaidya or Ayurvedic doctor can study the pulsation of the radial pulse of the patient's hand by applying light pressure with the fingers of his hand and find out the defect inside the body. What is the situation and discuss the various dimensions of Naadi Pariksha as per your convenience. The Ayurveda Tridosha Scanner is a machine, so electrodes are placed at the same places in the same way as the Vaidya uses his fingers. Three combined electrodes are placed in one hand and three in the other hand. This is the first objective of selection of site. The seventh electrode is placed in the middle finger of the left hand. The reason for this is that the heart is on the left side and due to the heart being on the left side, the speed of pulse pulsation is better on the left side as compared to other parts of the body. Blood circulation is more in the middle finger due to its length, that is why this place has been selected so that better signals can be received and the machine can do the best analysis and synthesis of those signals.

II.2 Procedure of recording Data in machine

To record the pulse test data through the machine, after placing the sensor or electrode in the patient's body, the switch of the machine is switched on and after this the process of recording through the machine starts. Recording is done from 1 to several times so that no point is missed. When this process is over, the machine automatically analyzes and synthesizes the recorded data and immediately displays the results on the screen to know what is the level of Vata, Pitta, Kapha mixed with its seven types, seven metals and three stools inside the body. is present. Apart from these, the functioning of 16 systems of the body is analyzed and displayed on the screen. Its data goes into the memory and from there this data gets fed into the computer and a 2 page report is printed by the printer and made a hardcopy. The entire procedure takes 10 to 20 minutes,

II.2 Showing results on screen after examination of patient

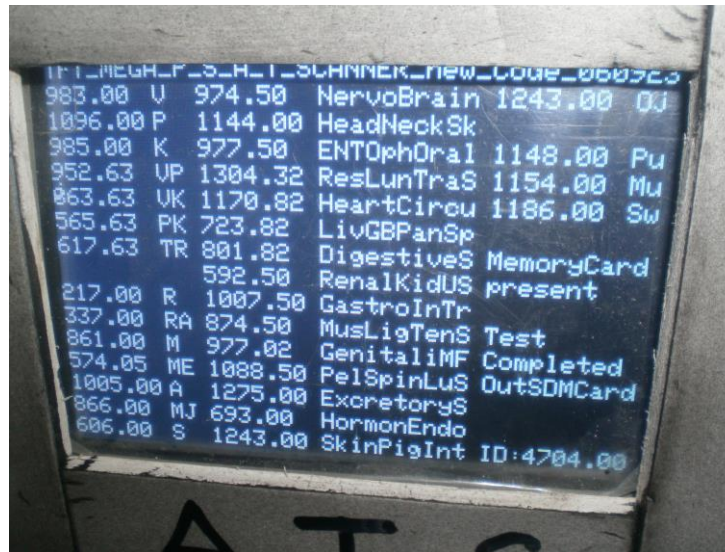


Fig - 4 Summarised Data Record just after test completed Shows details on Screen for Quick analysis with patient ID.



Fig - 5 Different Varieties of Sensors used for Patient Examination Human Body selected Sites of Sensor Applications Accordingly

After the patient is examined, the machine synthesizes and analyzes the recorded data after a few minutes, assesses the principles of Ayurveda and the level of disorders prevalent in the patient's body, and prints it on the screen. By looking at the result of the test, the patient can be immediately told what problems he is facing and from the point of view of Ayurveda, which of his doshas and dhatus are in distorted state. By looking at this, it can be ascertained that the person for whom the test has been done is Apart from the principles of Ayurveda like Vata, Pitta, Kapha and Sapta Dhatus of Ayurveda, there are 16

supporting organs of the body inside his body. What is the assessment of all of them, are all these organs functioning normally or functioning less than normal or normal? Working more than. This kind of data is very important in the medical work and treatment of Ayurveda.

Below is printed report which contains the Nadi speed Characteristics, Nadi pressure, Nadi counts, respirations corresponding to Nadi speed and body temperature. In first part of the report, the additional data is provided apart from main report.

II.2 Data Transfer and saving in Hard Copy

Along with recording the data received by the machine on the screen, this data can be printed in the form of a report and given to the patient and this record can be kept safe. The machine saves all the data in memory. Computer- After printing this data through printer, a hard copy is taken out. This hard copy is of [2] Two pages.

First page of report

DIGITAL AYURVEDA TRIDOSHO SCANNER
VERSION:T_M_P_S_A_T_S_n_C_120923

PATIENT NAME:ID: 4694.00

KANAK POLYTHERAPY CLINIC & RESEARCH CENTER
KANPUR MOBILE;8604629190

TEST REPORT

67	Adhi Dab/Hg
100	Madhya Dab/Hg
64	Mand Dab/Hg
20	Pulse Rate/minute
92	Oxygen Presence%
22	Respiration Rate
36.44	Centigrade Temp

HUMORS : TRIDOSH

641.64	HIGH	WINDवात-Psora
711.64	HIGHEST	BILEपित्त-Syphilis
672.64	HIGHEST	PHLEGMकफ-Sycosis
234.27	LOWEST	WIND-BILE
277.27	LOWEST	WIND-PHLEGM
490.27	NORMAL	BILE-PHLEGM
472.27	NORMAL	WIND-BILE-PHLEGM
< 550.01 - 450.01 > : Normal Range		

CONSTITUENTS ESTIMATION : DHATUS

131.46	LOWEST	METABOLISM
-20.54	LOWEST	HAEMAL
858.46	HIGHEST	FLESH MUSCLES
639.23	HIGH	FAT LIPIDS
732.46	HIGHEST	SKELETON BONE
682.46	HIGHEST	BONE MARROW
476.46	NORMAL	SEMEN OVUM VIGOR
< 550.01 - 450.01 > : Normal Range		

Fig – 6 Printed Ayurveda Tridosho Scanner First page report

Second page of Report:

WASTAGE ANABOLICS

475.33 LOW STOOL
494.33 LOW URINE
530.33 HIGH SWEAT
< 500.01 > : Normal Range

DISEASES-ORGANICS PATHO-PHYSIOLOGY

446.58 NORMAL AUTONOMIC NERVOUS SYSTEM
551.58 NORMAL HEAD NECK SPINE UPPER BACK
493.08 NORMAL EAR NOSE THROAT MOUTH CAVITY
210.90 LOWEST PULMONARY LUNGS TRACHEA LARY-PHARYNX
275.40 LOWEST CIRCULATION HEART VESSELS
594.90 NORMAL LIVER GB PANCREAS SPLEEN
567.90 NORMAL DIGESTIVE SYSTEM
201.58 LOWEST RENAL KIDNEY URETER BLADDER
100.58 LOWEST GASTRO INTESTINAL TRACT
637.08 HIGH MUSCULO SKELETAL JOINTS
327.47 LOW GENITALIA REPRODUCTIVE ORGANS
662.08 HIGH PELVIC BACK SPINE LOWER LIMBS
766.08 HIGHEST EXCRETORY SYSTEM
494.08 NORMAL HORMONAL ENDOCRINES
779.58 HIGHEST SKIN INTEGUMENTARY SYSTEM
891.08 HIGHEST OJAS VITALITY IMMUNITY
< 550.01 - 450.01 > : Normal Range

TEST COMPLETED

ID: 4694.00

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Time & Date :

Fig – 7 Printed Ayurveda Tridosho Scanner second page report

Printed Two pages Report obtained after Test performed.

The first part of Data is related to Nadi qualities as below;

- 1- Status of Nadi Adhi Dab
- 2- Status of Nadi Madhya Dab
- 3- Status of Nadi Mand dab
- 4- Status of Nadi Gati
- 5- Status of Oxygen Level
- 6- Status of Respiration Rate
- 7- Status of Body Temperature

The second part of Data is related to Tridosho Existence;

- 1- Vata
- 2- Pitta

- 3- Kapha
- 4- Vata Pitta combination of two dosha
- 5- Vata Kapha Combination two Dosha
- 6- Pitta Kapha Combination of two Dosha
- 7- Vata-pitta-kapha combination of three Dosha

The third part of Data is related to Sapta Dhatus ;

- 1- Ras
- 2- Rakta
- 3- Mans
- 4- Med
- 5- Asthi
- 6- Majja
- 7- Shukra

The fourth part of Data is related to Mala ;

- 1- Stool- Purish
- 2- Urine – Mutra
- 3- Sweat- Swed

The fifth part of Data is related to the Body systems;

- 1-Autonomic Nervous system
- 2- Head Neck Spine Upper Back
- 3- Ear Nose Throat Mouth Oral Cavity
- 4- Pulmonary Lungs Trachea Respiratory systems
- 5- Circulation Hear Vessels
- 6- Liver Gall Bladder spleen pancreas
- 7- Digestive system
- 8- Renal Kidney Ureter Bladder
- 9- Gastro Intestinal Tract
- 10- Musculo skeletal Joints
- 11- Genitalia Reproductive system
- 12- Pelvic Back Spine Lower Back
- 13- Excretory system
- 14- Hormonal Endocrinal system
- 15- skin Integumentary system
- 16- Ojas Vitality Immunity

All Data have segregated in Five categories and in five gradation;

- 1- Highest < above 750.01 >
- 2- High < 750.01 to 550.01 >
- 3- Normal < 550.01 to 450.01 >
- 4- Low < 449.99 to 300.01 >
- 5- Lowest < below 300.01

After long observation in large numbers of patient Normal Parameter is set in between < 550.01 to 450.01 > in this machine.

III. RESULTS AND CONCLUSION

From the above discussion, in conclusion, practicality and purpose of use have been verified by the Ayurveda Tridosha Scanner. Prototype is manufactured with the components and type of sensors are specially designed in view of specific uses, it is especially important to note that after the placement of the sensor in the body, the machine scans obtaining signals through sensors and analyse and synthesis. The analysis and synthesis is done automatically through the programming of Artificial Intelligence inside the machine and its results and data appears on the screen within few minutes. This has the advantage that the Ayurveda doctor immediately comes to know what kind of disease is developing inside the patient's body. and how it can be resolved through integrated treatment Now, it can be said that machine Ayurveda Tridosho Scanner can prove to be a one-time solution for diagnosis of Ayurveda Principles with psychosomatic and somatopsychic illnesses simultaneously.

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12. Harrison, s Principals of Internal Medicine relevant chapters
13. Price text Book of Medicine
14. Text Book of Physiology by A.K. Jain relevant chapters
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16. Sharangadhar samhita by Maharshi Sharangdhar relevant chapter

BIOGRAPHY



Inventor photo and details /descriptions ;

Dr. Desh Bandhu Bajpai, Chief Investigator, [1] Electro Tridosho Graphy/ Gram, E.T.G. AyurvedaScan and Ayurveda Tridosho Scanner and Ayurveda Head-Trunk-Limbs Whole Body Scanner [A.H.T.L.W.B.S.] and Ayurveda Blood Chemical Chemistry Analyser Technology.

Born 20.11.1945 at village Karnaipur, situated at Raibareilly- Lal Kuan- Unnao Road, Police station Bara Sagavar, Post office Bara Sagvar, Distt Unnao, Uttar Pradesh, Bharat. Primery education at Madarsa, Karnaipur, after that Nagar Palika Munispality Basic School, Kanpur.High School and Intermediate from Board of High School and Intermediate education, Allahabad. Graduate in Homoeopathy, Bachelor of medicine and surgery [BMS,] from Homoeopathic medicine Board, Lucknow, Uttar Pardesh in year 1972. Ayurveda and Unani graduate from Nikhil Bhartvarshiya Ayurveda Vidyapith, New Delhi as Ayurvedacharya [B.A.M.S.] in year 1977. Uttar Pradesh Government allowed Ayurvedic Physicians for using over Allopathic 45 alkaloids based remedies. Integrated diagnosis and treatment studied in Munich, Germany at Hospital for Nature cure methods and got Diploma in Phytotherapy and Homoeopathy in year 1977-1980. Post Graduate in Ayurveda, Doctor of Medicine [M.D.] and Homoeopathy M.I.C.R. with Cardio-vascular care certificates etc etc. Practicing in Ayurveda Homoeopathic Unani Allopathy physiotherpu Acupuncture silultaneoously at our research center at Kanpur Uttar Pradesh over 60+ years.