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Review on Scope of Pharmacognosy graduate in various government research instititute in India

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ABSTRACT

The Pharmacognosy is study of crude drugs, the role of Pharmacognosist difference based on the research institute. In India lot of research of institute available for development of herbal and traditional based drugs such as phytopharmaceutical, chemistry of natural products and siddha, Ayurveda, Unnai propertery drugs. The graduate from Pharmacognosy have lot of carrier opportunities and temporary project Positions such as JRF, Project associate in various research instititute such as CSIR-CDRI, CIAMP, IIIM, IHBT NBRI. The another very important scope of Pharmacognosist in AYUSH Department, the ministry of ayush estabalished various research lab for development Ayruveda, siddha, unani, and hemopathy medicine they are like CCRAS, CCRS, CCRH, CCRUM. The role of Pharmacognosist in ayush institute such as authentication and standardization of raw drugs and formulated crude drugs as churna, chooranam etc. Indian pharmacopeia laboratory also a very important carrier opportunites for phamacognosy graduate.

Keywords: Pharmacognosy, AYUSH, Phytopharmaceuticals, Crude drugs, Medicinal plants.

INTRODUCTION

Pharmacognosy is a significant part of drug store that incorporates the logical investigation of underlying, physical, compound, biochemical, and organic properties of unrefined medications and quest for new medications from plant, creature, and mineral sources. It was presented and utilized interestingly by J. A. Schmidt (1811) and C. A. Seydler (1815), individually, to characterize the part of medication or item which manages rough medications. It is the study of nature-inferred drugs and remembers reads for primary, physical, synthetic, organic characters of unrefined medications their remedial use, history, strategy for development, assortment, readiness, safeguarding, and trade [1]. Modern Pharmacognosy involves the broad study of natural products from various sources including plants, bacteria, fungi, and marine organisms [2] This study acts as an important link between pharmacology and medicinal chemistry which also plays a vital role between tradatonal and allopathic systems of medicines. Organic science incorporates the recognizable proof (scientific categorization), hereditary qualities, and development of plants. Synthetic portrayal of incorporates the seclusion, ID and evaluation of constituents in plant materials [3]. Switch pharmacognosy is utilized to discover new organic focuses for regular mixtures by virtual or genuine screening and distinguish normal assets that contain the dynamic atoms. Turn around pharmacognosy and its converse mooring segment can't just be incorporated into a program for new lead disclosure but on the other hand is a helpful way to deal with discover new applications for recognized compounds [4]. Results of all, pharmacognosy research regions are proceeding to grow, and now remember parts of cell and sub-atomic science for connection to normal items, ethnobotany and phytotherapy, notwithstanding the more customary insightful strategy improvement and Phytochemistry [5]. Larger part of members accept there is parcel of extension to investigate the Complementary and Alternative Medicine (CAM), investigation of which can become principle branch in future. Adaptable nature of the subject has really assisted with advancing the control. Interdisciplinary nature of subject ought to be kept as such to oblige more up to date drifts, which thusly hurry further turn of events [6]. Recent years in India the Pharmacognosy field is well developed in various interdisciplinary drug discovery research instititute and public health related Indian system of medicine hospitals such as siddha, ayruvedha, unani and homeopathy. In this review paper mainly focused on job opportunities in the various interdisciplinary research institute and nature of them work.

Carrier Scope of Pharmacognosy Graduate in Council of Scientific and Industrial Research Institute (CSIR)

The Council for Scientific and Industrial Research (CSIR) is a modern research and development organization known for its latest knowledge base in research and development in various scientific and technological fields. CSIR has a history of 65 years and was designed by Dr. Bhatnagar to meet the challenge of time. Want to build a new CSIR to meet the needs of modern India. CSIR is spread all over

India and has a dynamic network of 38 national laboratories, 39 consulting centers, 3 innovation centers and 5 departments. According to Scimago's 2014 Global Institution Ranking Report, CSIR ranks 84th among 4, 851 institutions in the world, and is the only Indian institution among the top 100 institutions in the world. He ranks first in Asia and leads the country. The CSIR laboratory provides good drug development opportunities for pharmacognosy graduates. Coverage and standardization of herbal medicines. Various permanent and research grants are being recruited, for example. B. JRF and SRF are partners of some CSIR laboratory funded projects in India. The nature of the work mainly focuses on the extraction, separation, preparation and standardization of medicinal plants, using various analysis and morphological anatomy methods to evaluate and identify medicinal plants through microscopic research and DNA extraction procedures [7, 8, 9, 10, 11, 12].

Table 1: Name of institutes

S. No	Name of the Institute	Location	Official website	Nature of work
1	Indian Institute of Integrative Medicine (IIIM)	Canal Road, Jammu-180001 (J&K)	www.iiim.res.in	We sould have knowledge about extraction isolation of natural products and modern analytical methods used for structure elucidation of biomarker
2	Csir- Institute of Himalayan Bioresource Technology (IHBT)	Post Box No. 6, Palampur -176061 (HP)	www.ihbt.res.in	
3	Central Drug Research Institute (CDRI)	Sec. 10, Jankipuram Extension, Sitapur Road Lucknow-226031 (UP)	www.cdriindia.org	
4	Central Institute of Medicinal and Aromatic Plants(CIMAP)	P. O. CIMAP, Near Kukrail Picnic Spot, Lucknow-226015 (UP) Hyderbad and banglore	www.cimap.res.in	
5	Indian Institute of Chemical Technology (IICT)	Uppal Road, Hyderabad -500007 (Telangana)	www.iictindia.org	
6	Institute of Microbial Technology (IMTech)	Sector 39-A, Chandigarh-160036 (Chandigarh)	www.imtech.res.in	
7	National Botanical Research Institute (NBRI)	Rana Pratap Marg, Post Box No. 436, Lucknow -226001 (UP)	www.nbri.res.in	
8	National Chemical Laboratory (NCL)	Pashan Road, Pune- 411008 (Maharashtra)	www.ncl-india.org	
9	North -East Institute of Science and Technology (NEIST)	Jorhat-785006 (Assam	www.neist.res.in	

Institute of Biological Resources and Sustainable Development (IBSD)

The Institute of Biological Resources and Sustainable Development (IBSD) was registered under the Manipur Company Registration Act of 1989 in April 2001 and will establish a state-of-the-art biotechnology research center in Imphal, the city center. Hot spots of biodiversity in India and Myanmar. Use modern biological resources to realize the sustainable development of biological resources. Explore and document the unique biodiversity of the land biogeographic combination between India and the East. Develop biotechnology interventions to promote the sustainable development and utilization of biological resources. Since its establishment in 2001, IBSD Manipur has been committed to various fields that are vigorous in this context, including medicinal and aromatic plants, orchids and bamboo, ethnobiological research, natural product chemistry, microbial diversity, fermented food, and intestinal tract Microbiota, insect biological resources., Freshwater and aquaculture biological resources [13].

DEPARTMENT OF AYUSH

The AYUSH department was established on November 9, 2014. Formerly known as the Department of Indian Medical System and Homeopathy (ISM&H), it was established in March 1995 and was renamed the Department of Ayurveda, Yoga and Natural Therapy. Unani, Siddha and Homeopathy (AYUSH) in November 2003, with a focus on promoting education and research on Ayurveda, Yoga and Natural Therapy, Unani, Siddhas and Homeopathy. When planning your career, you should consider your career in the AYUSH medical system. People interested in the medical field. The growing audience of the organized education system of the AYUSH system and the Indian Aboriginal Health System makes the AYUSH major an important career choice for teaching, research, practice and entrepreneurship. It provides a lot of opportunities for pharmacognosy graduates from AYUSH research institutes and laboratories in India. There are many testing institutions in India for all standard treatment options. At the request of the Ayurvedic Science Coordinating Committee, the Siddha Central Research Committee, the Unani Central Medical Research Committee and the Homeopathy Central Research Committee, the Indian location of the Pharmaceutical Research Laboratory has been classified. This is Ayusha's basic research laboratory. The work of pharmacognosy is to verify and standardize crude drugs and their evaluations, and to specify the elements of various medical systems. This is an important task of pharmacognosy, which is reminiscent of macroscopic research and the creation of monographs on crude drugs. / Wet protection example. Preliminary phytochemical analysis and quantitative evaluation of active ingredients are the responsibility of the Department of Phytochemistry. Some laboratories of AYUSH postgraduate pharmacognosy work in the Department of Pharmacognosy [14].

Central council of research in Ayurveda science

The Central Council for Research in Ayurvedic Sciences (CCRAS) is a self-ruling body of the Ministry of AYUSH (Ayurveda, Yoga and

Naturopathy, Unani, Siddha and Homeopathy) of the Government of India. It's anything but a main body in India for the plan, coordination, improvement and advancement of exploration in logical spaces of the Ayurveda and Sowa-Rigpa clinical situation Improvement of logical information about Ayurvedic standards, pharmacological treatments through the combination of the shrewdness of the progenitors with present day innovation and carry Ayurveda nearer to individuals through logical advancements according to analysis, anticipation, advancement and treatment strategies and furthermore lead logical examination to the feasible accessibility of top notch normal assets to change over them into items and measures and to bring these developments into general wellbeing frameworks in cooperative energy with intrigued associations. its research programs with a network of 30 institutes / centers / peripheral units managed by the headquarters responsible for control, supervision and supervision. The broad research areas include: basic research pharmacological research (preclinical safety / toxicity and biological activity studies) medicinal plant research (medical ethno-botanical study, cultivation, pharmacognosy) drug standardization literature research research and documentation: Effort exercises incorporate the Tribal Healthcare Research Program, Swasthya Rakshan Program, Ayurveda Mobile Healthcare Program under the Programmed Caste Sub Plan (SCSP), mix of AYUSH (Ayurveda) with the National Program for the Prevention and Control of Cancer, Cardiovascular Diseases and Strokes (NPCDCS), Information, Education and Communication (IEC) and so forth as a component of the plant ethno-medication study, portions of the primary woodland divisions were inspected. The council maintains more than 120, 000 plant species in herbarium form and approximately 5, 000 samples of raw drugs have been collected for museums. Approximately 2, 500 popular claims were collected and 14 Medico Ethno Botanical Survey books were published. carried out [15].

Central Council for Research in Siddha (CCRS)

The Central Council for Research in Siddha (CCRS) is a self-governing body enlisted under social orders act in July 2010 under Dept. of AYUSH, by and by Ministry of AYUSH), Government of India, New Delhi. It's anything but a zenith body in India for starting, undertaking, planning, creating, co-ordinating and advancing exploration in Siddha on logical lines. Focal Council for Research in Siddha is perceived as a Scientific and Industrial Research Organization (SIRO) by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India from 21. 08. 2014. he Council has been executing its examination programs with an organization of 9 fringe Institutes/focuses/units with the central command office liable for control, observing and oversight. In September 2010, the Central Council for Research in Siddha (CCRS) was shaped by bifurcation of the recent Central Council for Research in Ayurveda and Siddha (CCRAS) [16].

The Central Council for Research in Unani Medicine (CCRUM)

The Central Council for Research in Unani Medicine (CCRUM) is a self-sustaining enterprise beneath the Ministry of AYUSH, Government of India. Since its status quo in 1978, the CCRUM because the apex authorities enterprise for studies in Unani Medicine has been engaged in undertaking medical studies at the carried out in addition to essential components of Unani machine of medicine. Consequently, over the last 4 many years of its existence, the Council has made considerable strides in scientific studies, drug standardization, survey and cultivation of medicinal flora, and literary studies. Besides, studies-orientated fitness extension offerings, and information, training and communication (IEC) sports have additionally been a part of the Council's programmes. Extension of Healthcare offerings beneathneath the scheme of collocation of AYUSH centres in Allopathic Hospital in Delhi, numerous Unani Medical Centres have been installed at RML Hospital, DDU Hospital, AIIA and at Safdarjung Hospital. With the efforts of the scientists and technical manpower at its 22 studies centres unfold throughout the country, the Council has gained appreciation from numerous quarters for its patents that are 17 in number, modern studies outcomes, and medical publications. The Council beneathneath its Clinical Research Programme has up to now performed research on some of investigational tablets except validating numerous pharmacopoeial formulations in distinct sickness situations at its studies centres and in collaboration with different medical institutions. The Drug Standardization Research Program is explicitly stressed with developing pharmacopoeial necessities for unmarried tablets and compound details of Unani Medicine ensured in various volumes of National Formulary of Unani Medicine (NFUM) and Essential Drugs List for their consolidation in Unani Pharmacopeia of India (UPI). The works of art on compound details comprises of progress of general running systems (SOPs) for their assembling saw with the guide of utilizing the improvement in their pharmacopoeial necessities. Moreover, normalization of investigational tablets for logical preliminaries on the Council and assessment of weighty metals, microbial burden, aflatoxin content material and pesticidal buildups in the drug likewise are embraced as a component of this program. Synthetic examinations of Unani restorative vegetation additionally are refined beneathneath this programme. The normalization canvases is cultivated agreeing with the design acknowledged with the guide of utilizing the Unani Pharmacopeia Committee of the Government of India through the resulting contemplates focuses [17].

Drug Standardization Research Institute (DSRI), Ghaziabad

Central Research Institute of Unani Medicine (CRIUM), Hyderabad

Regional Research Institute of Unani Medicine (RRIUM), Chennai

Regional Research Institute of Unani Medicine (RRIUM), Srinagar

Regional Research Institute of Unani Medicine (RRIUM), Aligarh

Drug Standardization Research Unit (DSRU), New Delhi

Central Council for Research in Homoeopathy

(CCRH) is the top research institution of the Ministry of AYUSH in India, conducting, coordinating, developing, disseminating and promoting scientific research in the field of homeopathy. The committee is headquartered in New Delhi, and multi-center research is conducted through a network of 26 research institutes/departments across India. The council formulates and implements research plans/projects; cooperates with national and international excellent institutions to conduct evidence-based research on the basic and applied aspects of homeopathy; monitors remote research and passes monographs, journals, newsletters, IMS materials, seminars/lectures The class disseminates the research results. The research conforms to the modern scientific framework and aims to transform research results into practice and expand the research results to the professional world and the public. The governing body is responsible for managing the policies, instructions and general direction of the work of the

council. Dear Minister AYUSH, the Indian government is leading the governing body and implementing full control. Approximately 70% of homeopathic medicines are extracted from medicinal materials. In order to maintain the quality of the medicines, the raw materials are collected from nature or grown in the garden under the supervision of experts. For the original, fresh and vivid plant materials, the Council established the Medicinal Plant Research Garden and the Medicinal Plant Research and Cultivation Department to collect medicinal plant materials from research areas in India. The research unit has been renamed Homeopathic Herbal Research Center, Tamil Nadu, Indira Nagar, Emerald Post, Nilgiris County, Tennessee, taking into account many aspects of herbal research conducted here.... In addition to researching the collection of wild medicinal plants used in homeopathy, the research center also conducts research on exotic and native plants, which are provided in accordance with the needs of pharmaceutical standardization or manufacturing and internal research. And manufacturers of homeopathic medicines-excessive amounts of non-commercial herbal raw materials. 75 species of plants are currently being cultivated (61 species of exotic plants, 14 species of native plants, plant species are in the trial and conservation stage, the demonstration area collects germplasm for further propagation or production of seeds for the next generation to continue and the above specifications are reserved for use In addition, it is expected that a drug standardization research laboratory will be established in the future, which will concentrate all aspects of herbal research under one roof, and collect 9384 specimen lists with the specimen certificate number CRH during the visit. Member of the Special Committee on Pharmaceutical Standardization 2017 In August 2008, the domestic use of the polyethylene was stopped, mainly used for seedling germination, vegetative propagation (VP clone) and seedling mass production. The entire large s indoor use area. Provide medical raw materials and commercial use for drug standardization units. Homeopathy The success of therapy prescriptions is based on the purity and quality of the raw materials and finished products. These raw materials and finished products were originally made of polycarbonate sheets in Nilgiris. Inferior drugs will not have the expected effect on patients. For homeopathic medicines, the raw materials and physicochemical Comprehensive evaluation with pharmacological characteristics to check various qualitative and quantitative characteristics of the drug. Phytopharmacology research of medicinal raw materials includes the study of the rough morphology, macroscopic and microscopic properties of medicinal raw materials, and the enumeration of cells, tissues and cell characteristic structures that have been properly processed. The determination of the microscope and its basic biometric size. The physical and chemical parameters of the medicinal raw materials and mother tin produced include moisture, ash content, extraction value, the presence and sensory characteristics of the active ingredients in the medicinal raw materials, and special tests on the mother body and DC and UV spectrophotometric agents. It will be used as a reference for any commercial samples to be compared in the future, or as a reference when needed [18].

Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H)

Is a subordinate workplace below Ministry of AYUSH, Government of India? Development of accumulations Associate in Nursing Formularies also as acting as Central Drug Testing seed appellant Laboratory for Indian systems of drugs & medical aid are the key fields of activity of PCIM&H. The Commission was ab initio established as accumulation Commission for Indian medication (PCIM) on eighteenth August, 2010 as an autonomous body under Ministry of AYUSH and was registered under Societies Registration Act, 1860 on thirty first August, 2010. However, in pursuance to the choice of Central Government (dated twentieth March, 2014), medical aid was incorporated and also the Commission was renamed as Pharmacopoeia Commission for Republic of Indian medication & medical aid (PCIM&H). Amendments in three-tier governing structure of the Commission conjointly came in result with this restructuring that the revived note of Association was signed on nineteenth May, 2014. The new name and revised note of Association of the Commission were re-registered below Societies Registration Act, 1860 on twenty fifth June, 2014. Initially Government of India had discovered Ayurvedic accumulation Committee (APC), Siddha accumulation Committee (SPC), Unani accumulation Committee (UPC) and Homoeopathic accumulation Committee (HPC) within the years 1962, 1975, 1964 and 1962 individually. These accumulation Committees were operating severally to publish respective Formularies and Pharmacopoeias. The four accumulation Committees having their secretariats at individual analysis Councils below Ministry of AYUSH were brought under the auspices of PCIM&H with institution of the later. Two central laboratories particularly Pharmacopoeial Laboratory for Indian medication (PLIM) and Homoeopathic Pharmacopoeial Laboratory (HPL) each were established as subordinate workplaces under then Ministry of Health and Family Welfare in 1970 and 1975 respectively. each PLIM and HPL were selected as supporting structures of PCIM&H in due course. Consequent upon call of Central Government (dated third June, 2020), the erstwhile autonomous PCIM&H has been re-established as a subordinate office under Ministry of AYUSH by merging into it, the 2 central laboratories particularly PLIM and HPL (notified vide gazette dated sixth July, 2020). 1. Quality standards To develop Pharmacopoeias for drugs/formulations of 'Indian Medicine' and 'Homoeopathy' To develop Formularies of 'Indian Medicine'. To revise/update/amend the revealed Pharmacopoeias and Formularies as could also be deemed necessary. To publish compendia supplementary to Pharmacopoeias/Formularies of 'Indian Medicine' and 'Homoeopathy' and alternative connected scientific/regulatory info concerning useful space of PCIM&H. Pharmacognosy section deals with biological science aspects of drug standardization and development of quality standards for ASU&H single drugs/compound formulations and drug identification protocols. the most focus of section is to scientifically validate the standard of single medication of plant origin and compound formulations. The section is answerable for ascertaining biological science identity of supply plants and their elements employed in ASU&H drugs. Developing and confirmatory Pharmacopoeial parameters love gross and microscopic identification alongside powder characterization is additionally one among the main work areas. This section also maintains a repository of biological science Reference Standards (BRS).

Botanical Reference Standards Repository

It is one of its mandates, the committee should maintain a national register of actual reference materials used in the production of ASU&H drugs in order to provide reference standards and provide reference standards to related parties. The Botanical Reference Standard (BRS) repository is being developed and maintained for the raw materials used in ASU&H drugs so that it can be stored and provided as a reference standard to relevant parties. Samples collected from habitats or otherwise obtained during the research period are properly verified and added to the repository. Each BRS sample is accompanied by the necessary document data (passport data). These

data contain information. Code, according to the names of various pharmacopoeias, botanical names, local names, sources, date of removal, storage conditions, etc., nostalgic data from pharmacopoeias and analysis profiles stipulated by pharmacopoeias. Plant standardization of herbal products through visual observation, microscopic examination and powder characterization, pharmacokinetic verification of pharmacopoeial work, implementation of education and group trips to different agro-climatic regions of the country to collect API product samples. These collected samples are reviewed, analyzed, and appropriately processed to be added/updated to the pharmacy. Establishment of museum/BRS and pharmacopoeial standards. Develop and maintain a nationwide BRS repository containing passport details of real reference raw materials used in the manufacture of ASU & H drugs. Develop and maintain a digital library of original medicines. Project beneficiaries/ other stakeholders' capacity building/training related scientific information research, development and publication. All other technical and non-technical work in the field of student pharmacy involves all aspects of drug standardization and the formulation of ASU and H Custom quality standards. Formulations/formulations and protocols for drug testing. This part focuses on the scientific confirmation of the quality of individual pharmaceutical products of plants, animals, minerals/metals, chemical sources and ingredients. This department is responsible for the development and verification of pharmacopoeial parameters such as physical and chemical parameters, DC/HPTLC fingerprints, heavy metal/toxic metal analysis, pesticide residues, and aflatoxin. Printout map of ASU and H preparations, capacity building, sending training for project beneficiaries/other participants Research, development and publication of relevant scientific information, all other technical and non-technical work related to chemistry and phytochemistrys one of its mandates, the committee should maintain a national register of actual reference materials used in the production of ASU&H drugs in order to provide reference standards and provide reference standards to related parties. The Botanical Reference Standard (BRS) repository is being developed and maintained for the raw materials used in ASU&H drugs so that it can be stored and provided as a reference standard to relevant parties. Samples collected from habitats or otherwise obtained during the research period are properly verified and added to the repository. Each BRS sample is accompanied by the necessary document data (passport data). These data contain information. Code, according to the names of various pharmacopoeias, botanical names, local names, sources, date of removal, storage conditions, etc., nostalgic data from pharmacopoeias and analysis profiles stipulated by pharmacopoeias. Plant standardization of herbal products through visual observation, microscopic examination and powder characterization, pharmacokinetic verification of pharmacopoeial work, implementation of education and group trips to different agro-climatic regions of the country to collect API product samples. These collected samples are reviewed, analyzed, and appropriately processed to be added/updated to the pharmacy. Establishment of museum/BRS and pharmacopoeial standards. Develop and maintain a nationwide BRS repository containing passport details of real reference raw materials used in the manufacture of ASU & H drugs. Develop and maintain a digital library of original medicines. Project beneficiaries/ other stakeholders' capacity building/training related scientific information research, development and publication. All other technical and non-technical work in the field of student pharmacy involves all aspects of drug standardization and the formulation of ASU and H Custom quality standards. Formulations/formulations and protocols for drug testing. This part focuses on the scientific confirmation of the quality of individual pharmaceutical products of plants, animals, minerals/metals, chemical sources and ingredients. This department is responsible for the development and verification of pharmacopoeial parameters such as physical and chemical parameters, DC/HPTLC fingerprints, heavy metal/toxic metal analysis, pesticide residues, and aflatoxin. Printout map of ASU and H preparations, capacity building, sending training for project beneficiaries/other participants Research, development and publication of relevant scientific information, all other technical and non-technical work related to chemistry and phytochemistry [19, 20].

CONCLUSION

Pharmacognosy has various carrier skills in a research institute in India. The skills of freight forwarders are divided into different fields, such as research and development, quality control, formulation and research in various research institutions across India. The Institute of Traditional Medicine, like the entire institute, belongs to the AYUSH department; the names are Researcher and Researcher, and the related items are JRF and SRF., Natural products and nutrition chemistry. In India, a large number of private and public organizations, such as csir-CDRI, CIAMP, NBRI, IIIM, IHBT, IMTECH, have conducted a series of studies on medicinal plant ethane. After work, such as extraction, separation, analytical method development and medical cosmetics. Permanent assignments are AB and C-level technical officers, senior technology and researchers, as well as some project positions that can be used as project partners, project assistants and JRF during this period. This document provides a professional guide for pharmacognosy and other pharmacy students.

Conflict of Interest

The authors declare that there is no conflict of interest.

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