Function and Importance of Quality Control Lab in Ayurvedic Pharmacy - A Literature Review

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***Abstract*- Before consuming any type of medicine, they need to be tested and approved for consumption in prepared pharmaceutical laboratories, so that they can be sold and consumed by the population. In this article, we will see in some topics how these processes work and their main function. The main objective of quality control in the Pharmaceutical Industry is to test the drugs in their various stages of production, verifying that they are able to proceed to the next stage and release the manufacturing process in accordance with the regulations and specifications required for consumption.**

***Key Words*: QC Lab , Ayurveda, Quality, Pharmaceutical Industry, Pharmacognosy.**

I.INTRODUCTION:

Definition - Quality control laboratories may perform some or all quality control activities, e.g. sampling, testing of APIs, excipients, packaging materials and/ or pharmaceutical products, stability testing, testing against specifications and investigative testing. [5]

Q.C. Lab Function-

1. To ensure the quality of Raw material used in Ayurveda Medicine.
2. To check finished product for the required parameters.

Quality Control - The term "quality control" refers to the sum of all procedures undertaken to ensure the identity and purity of a particular pharmaceutical. Such procedures may range from the performance of simple chemical experiments which determine the identity and screening for the presence of particular pharmaceutical substances (e.g. thin layer chromatography, infrared spectroscopy, and so on), to more complicated requirements of pharmacopeial monographs. [6]

II. AIMS AND OBJECTIVES:

1. To understand the concept of Q.C. Lab.
2. To review the literature of Instruments of Q.C. Lab in Ayurveda Pharmacy.

III. MATERIALS AND METHODS:

Available textbooks, handbooks, e-books, search engines like Google, original research articles from various high impacting international peer reviewed journals etc. were the sources utilized for understanding the concepts under study.

IV. LITERATURE REVIEW:

INSTRUMENTS USED IN Q.C. LAB-

A. CHEMISTRY SECTION

- Alcohol Determination Apparatus (complete set)
- Volatile Oil Determination Apparatus
- Boiling Point Determination Apparatus
- Melting Point Determination Apparatus
- Refractometer
- Viscometer
- Tablet Disintegration Apparatus
- Moisture Meter
- Muffle Furnace
- Electronic Balance
- Magnetic Stirrer
- Hot Air Oven
- Refrigerator
- Glass/Steel Distillation Apparatus
- LPG Gas Cylinders with Burners. Water Bath (Temperature controlled)
- Heating Mantles/ Hot Plates
- TLC Apparatus with all accessories (Manual)

- Paper Chromatography apparatus with accessories
- Shaker
- Centrifuge Machine
- Dehumidifier
- pH Meter
- Limit Test Apparatus

B. PHARMACOGNOSY SECTION

- Microscope Binoculor
- Dissecting Microscope
- Microtome
- Physical Balance
- Aluminium Slide Trays
- Stage Micrometer
- Camera Lucida (Prism and Mirror Type)
- Chemicals, Glassware etc [4,3]

DIVISION IN QUALITY CONTROL LAB -

1. Phytochemistry Lab –

a. Chromatographic Identification
b. Determination of PH, Powder size etc
c. Estimation of total ash, alcohol content, volatile oils, viscosity, moisture etc.

2. Pharmacognosy Lab –

a. Macroscopic & Microscopic identification of crud & powdered drugs.
b. Measurement of cell size and drawing of microscopic structure.

3. Microbiology Lab –

a. microbial Limit Test
b. Total Bacterial, Fungal Count
c. Culture & Sensitivity test
d. Determination of antimicrobial activity of drug
e. Identification of pathogenic strain [1,2]

THE QUALITY CONTROL SECTION SHALL HAVE THE FOLLOWING FACILITIES -

- For identification of raw drugs, reference books and reference samples should be maintained.
- Manufacturing record should be maintained for the various processes.
- To verify the finished products, controlled samples of finished products of each batch will be kept till the expiry date of product for 3 years.
- To supervise and monitor adequacy of conditions under which raw materials, semi- finished products and finished products are stored.
- Keep record in establishing shelf life and storage requirements for the drugs.
- Manufacturers who are manufacturing patent and proprietary Ayurveda, Siddha, and Unani medicines shall provide their own specification and control references in respect of such formulated drugs.
- The record of specific method and procedure of preparation, that is, Bhavana, Mardana and Puta and the record of every process carried out by the manufacturer shall be maintained.
- All raw materials will be monitored for fungal, bacterial contamination with a view to minimize such contamination [4]

V. DISCUSSION AND CONCLUSION:

Quality control is essential in the pharmaceutical industry because it ensures that medications are safe and effective for their intended uses. This involves testing samples of drugs to ensure that they meet the required standards for strength, purity, and accuracy. Quality control measures not only help maintain product integrity but also protect patient safety. In conclusion, quality control plays an essential role in the pharmaceutical industry by ensuring medications are safe and effective for consumer use.

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