

Pharmaceutical inorganic chemistry

Unit I

Impurities in pharmaceutical substances.





Pharmaceutical chemistry

Pharmaceutical chemistry is specialize science which depends on other chemical disciplines such as inorganic, organic, analytical, physical and colloid chemistry.

□ **Pharmaceutical inorganic chemistry**

Pharmaceutical inorganic chemistry is the science that makes use of laws of chemistry to study inorganic substances as drugs, i.e., their preparation, chemical nature, composition, structure, influence on an organism, etc.

Introduction to pharmacopoeia

- **Pharmacopoeia:** (Pharmakon- a drug, and poiein- to make) is a book of directions and requirements for the preparation of medicines; it is generally published by an authority.
- Thus pharmacopoeia is a legislations of a country which sets standards and obligatory quality indices for drugs, raw materials used to prepare them and various pharmaceutical preparations.

**INDIAN
PHARMACOPOEIA
2018**


Volume I



Government of India
Ministry of Health & Family Welfare



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THE INDIAN PHARMACOPOEIA COMMISSION, GRAZIAPAD



- The book containing standards for drug and related substances that's why the books known as drug **compendia**.

- **Classification of compendia:**

- 1. Official compendia

- 2. Non- official compendia's

- **1. Official compendia-** official compendia are the compilations of the drug and other related substances which are recognize as legal standards for purity, quality and strength by the government agency of respective country.

- E.g.,

- 1. Indian pharmacopoeia (IP)

- 2. British pharmacopoeia (BP)


- 3. United state pharmacopoeia (USP)

- 4. National formulary (NF)

- 5. British pharmaceutical codex (BPC)

- 6. European pharmacopoeia (EP)

- 7. Pharmacopoeia of other countries.



□ **2. Non official compendia-** The book other than official drug compendia which are used as secondary reference standards for drugs and other related substances are known as non official drug compendia.

E.g., 1. Merck Index

2. Extra pharmacopoeia (Martindale)

3. United state dispensatory



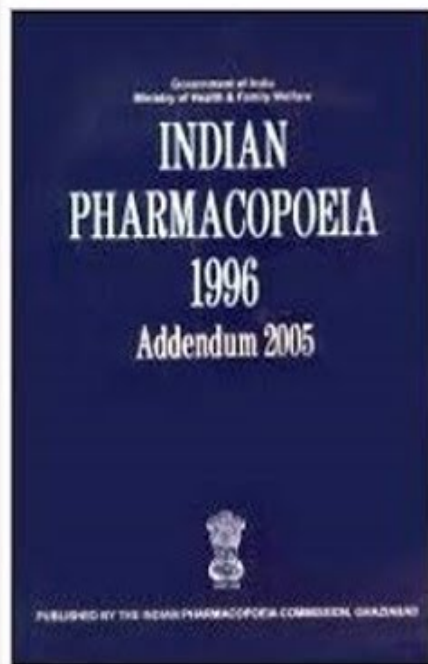
Pharmacopoeia (IP)

Pharmacopoeia contains-

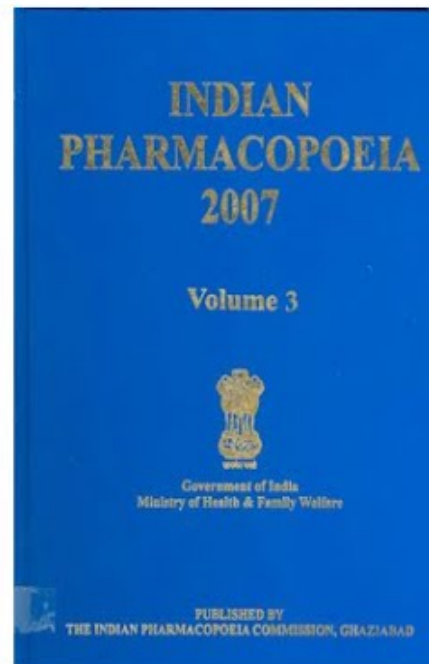
- List of drug and other related substance
- Sources
- Descriptions
- Tests
- Formulas for preparations actions
- Uses
- Doses
- Storage conditions

INDIAN PHARMACOPOEIA

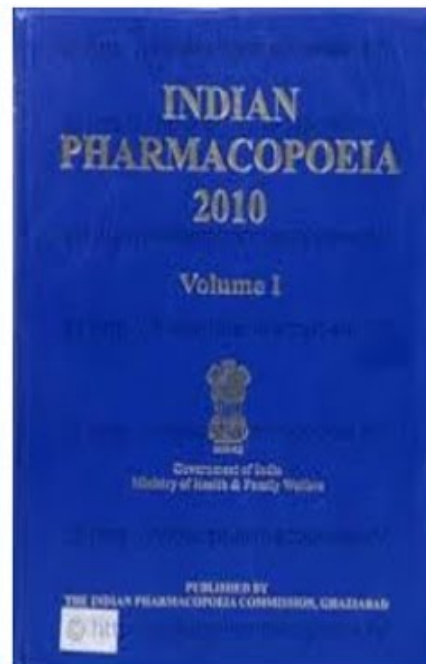
Indian Pharmacopoeia Commission (IPC)



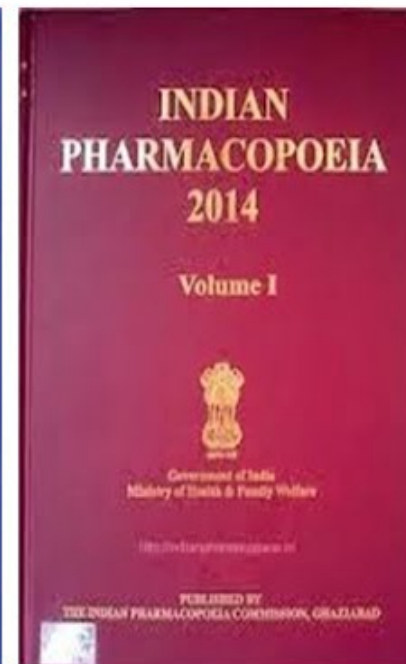
1996



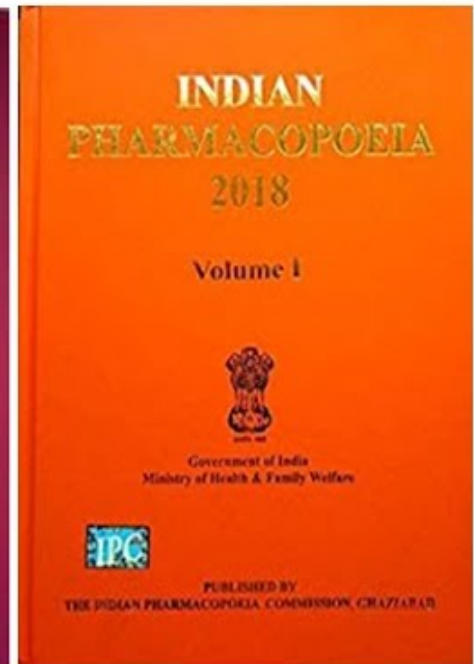
2007



2010



2014



2018

History of Pharmacopoeia

□ Indian pharmacopoeia

□ It is an governmental publication with a view to promote public health in India by adopting the official accepted standards for quality of drugs including active pharmaceutical ingredients, excipients and dosage form.



□ History

□ **1833-** Committee of the east India company dispensary recommended the publication of pharmacopoeia.

□ **1844-** East India company published Bengal pharmacopoeia and general conspectus of medical plants.

□ **1868-** The Bengal pharmacopoeia and general conspectus of medicinal plants was revise.

The new version was referred as pharmacopoeia of India. This edition contains both the drugs from the British pharmacopoeia and indigenous drugs.

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- **1840-** The government British cost the drugs and cosmetic act 1940 subsequently in 1945 drugs & cosmetic rules where amended for standards of drugs produced and marketed in India.
 - **1948-** After the independent governments constituted India pharmacopoeia committee the sold responsibility had been conferred to Indian pharmacopoeia.
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- **1. First edition-** year of publication 1955
Supplement- 1960
 - **2. Second edition-** year of publication 1966
Supplement- 1975
 - **3. Third edition-** year of publication 1985
First addendum year- 1989
Second addendum year- 1991
Volume- 2
 - **4. Fourth edition-** year of publication 1996
First addendum year- 2000
Second addendum year- 2002
Volume- 2
 - **5. Fifth edition-** year of publication 2007
Addendum- 2008
volume- 3

□ **6. Sixth edition-** year of publication 2010

Addendum- 2012

volume- 3

□ **7. Seventh edition-** year of publication 2014

Addendum- 2015, 2016

volume- 4

□ **8. Eighth edition-** year of publication 2018

Addendum- 2019, 2021

Volume- 4

□ **Chief ministers-**

□ **First edition-** Dr. B. N Ghosh

□ **Second edition-** Dr. B. Mukharji

□ **Third edition-** Dr. Nityanand

□ **Fourth edition-** Dr. Nityanand

□ **Fifth edition-** Dr. Nityanand

Monograph

- Monograph is complete description of specific pharmaceutical compound which include chemical formula, atomic & molecular weight, definition, assay, tests, limit of impurity, quantity & condition for storage.

Contents of monograph-

- Title
- Chemical formula & molecular weight of sub.
- Category
- Dose
- Description
- Solubility
- Standards
- Identifications
- PH
- Limits of impurities
- Assay
- Storage
- Labeling

Other pharmacopoeia

BRITISH PHARMACOPOEIA

- ❖ The British Pharmacopoeia (BP) is the official collection of standards for UK medicinal products and pharmaceutical substances. Published annually, the BP contains monographs for pharmaceutical substances, formulated preparations and other articles used in the practice of medicine.
- ❖ The 1st National Pharmacopoeia was produced by England in 1618. It was called LONDON PHARMACOPOEIA (Pharmacopoeia Londenensis abbreviated as P.L).
- ❖ Later on in 1699, **Edinburg** produced its own pharmacopoeia & similarly in 1807 **Dublin** in Ireland produced its own.
- ❖ The Medical Act 1858 ordered to fuse these 3 pharmacopoeias to form a book called **British pharmacopoeia** which was assisted by members of British pharmaceutical society.
- ❖ First edition of **BP** was published in **1864**.
- ❖ It consist of two sections
- ❖ Part I:- **Materia Medica** & Part II:- **Preparation & compounds**.
- ❖ Second edition of **BP** was published in **1867**.
- ❖ Fourth edition of **BP** was published in **1898**.
- ❖ Fifth edition of **BP** was published in **1914**.
- ❖ Eighth edition of **BP** was published in **1953**.
- ❖ In this edition titles of drugs & preparations were in **English** instead of **Latin** and **metric system**.
- ❖ It has been published **annually**.

European pharmacopoeia

- An official group of standard adopted by German, France, Italy, neither land, new Zealand, Swaziland and Belgium is European pharmacopoeia.
- In July 1964 the council of Europe issued and order to frame out European pharmacopoeia. In 1969 onwards European pharmacopoeia was appear as official standard book for medicinal substances and other drug of European country.



Extra pharmacopoeia (Martindale)

- ❑ The extra pharmacopoeia was first produced in 1883 by William Martindale and is still known as Martindale.
- ❑ Produced by royal pharmaceutical society of great Brittan and it is available for medical practioner and pharmacist all over the world.
- ❑ It contains information of drugs and medicines.
- ❑ Martindale (1840- 1902) a practicing pharmacists. Its main aim to provide physicians and pharmacists with practical and up to date information concerning drugs and gelenicals supplements that was included in the British pharmacopoeia. Four edition of 'Martindale' were published in the span of three years.