

# Sir Ram Nath Chopra: Father of Indian Pharmacology

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**Abstract:** *Sir Ram Nath Chopra (17 August 1882 - 13 June 1973) was a distinguished Indian pharmacologist and an authority on the control of drug manufacture. He is widely remembered as the "Father of Indian Pharmacology" and a pioneer of systematic studies of indigenous drugs, promoter of Indian systems of medicine, and patron of pharmacy. Chopra joined the Calcutta School of Tropical Medicine as the first professor of pharmacology in 1921. During his work at the School spanning two decades he established the first centre of studies and research in pharmacology. The major fields of his interest remained the general pharmacology, chemotherapy, indigenous drugs, drug addiction and drug assays. He was instrumental in changing the traditional descriptive Materia Medica teaching to modern pharmacology, with strong experimentation base. He presided over the Drugs Enquiry Committee (1930 - 31), and its history - making report made compelling recommendations, which paved the way for the drugs and pharmacy legislations, pharmacopoeial publications and development of the pharmacy profession. For his immense contribution to the field of medical science, Ram Nath Chopra was conferred numerous accolades including the Knighthood in 1941. His legacy continues to inspire medical professionals throughout the world.*

**Keywords:** Sir Ram Nath Chopra, Indian pharmacologist, Father of Indian Pharmacology, indigenous drugs, drug legislation.

## 1. Introduction & Background

Ram Nath was born at Gujranwala, Punjab on August 17, 1882. His early education was at Jammu and Srinagar and collegiate studies were at Government College, Lahore. He left for England in 1903 and joined the Downing College, Cambridge. He qualified for Natural Sciences Tripos and was

admitted in B. A. in 1905. He had the privilege to work with famous Dr. Walter E. Dixon, a keen experimental pharmacologist. He also studied at Bartholomew's Hospital in London. He competed for the Indian Medical Service (1908) and stood third. He obtained Cambridge M. B. and M. D. and the London M. R. C. P. Chopra worked in the medical service for more than a decade before joining the newly created Calcutta School of Tropical Medicine. (1)



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## 2. Review

R. N. Chopra joined as the first professor of pharmacology at the newly created Calcutta School of Tropical Medicine in 1921. He was also appointed to chair the pharmacology

department at the Calcutta Medical College. Thus, Chopra was the first professor to give lectures in pharmacology. At the School, he got to lecture and hold demonstrations for the postgraduate students and at the Medical College, it was undergraduate teaching in the subject.

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In a few years, under the chairmanship of Chopra, the pharmacology laboratory at the School became as well equipped as some of the best pharmacological laboratories in the United Kingdom. The charge of the Out - patient Department related to general tropical diseases and a number of beds in the Carmichael Hospital of Tropical Diseases were instrumental in keeping the Pharmacology Department in direct contact with clinical work.

Sir R. N. Chopra started building the pharmacological study and research centre from the very outset. He collected around him many gifted young researchers and trainees who came from different regions to study and work under him. He established a new face of the subject, altering it from traditional Materia Medica to modern pharmacology. His major work area of strength was in experimental pharmacology. (2)

The period Chopra spent at the Calcutta School of Tropical Medicine was the most noteworthy time in his career. Varied kinds of studies were carried out on general pharmacology and chemotherapy. Research on indigenous drugs and their promotion was his favourite area of work. He was also involved in significant surveys on drug addiction. Drug analysis was the other activity that captured his attention. During the period at the School, he headed the pharmaceutical epoch - making Drugs Enquiry Committee and also contributed to the development of pharmacy as a profession.

Professor Chopra was the pioneer of study and research in pharmacology in India. He was the first person to establish the study of experimental Pharmacology at the Calcutta School of Tropical Medicine. Under his expert guidance, the Department of Pharmacology earned prominence for the researches in various aspects of tropical medicine, therapeutics, chemotherapy, experimental pharmacology, toxicology, clinical evaluation of drugs, drug addiction, indigenous drugs, drug standardization and biological assays, pharmaceutical problems and problems related to clinical medicine, and diagnostic services.

#### **Chopra's contribution to systematic studies of indigenous drugs**

The credit for opening up this previously neglected field goes to Chopra. It was his work that gave the driving force for conducting research on Indian medicinal plants at different institutions. Research started in various universities and colleges in centres such as at Calcutta, Bombay, Dacca, Patna, Allahabad, Lahore, Madras, Trivandrum, etc. At Calcutta, Chopra and his associates carried out extensive studies on medicinal properties of indigenous plants. Their studies, carried out using modern methods of chemical, pharmacological and therapeutic research showed that certain drugs deserved widespread pharmacopoeial recognitions, and the examples cited included ispaghula, kurchi, *Rauwolfia*, *Psoralea*, cobra venom, etc. He published his research findings in the form of many books. (3) He was the author, among others, of *Anthelmintics* (1928), *Indigenous Drugs of India* (1933) and *A Handbook of Tropical Therapeutics* (1934), 'Indigenous Drugs of India', 'Glossary of Medicinal Plants of India', and 'Poisonous Plants of India' and Drug Addiction in India became the most enduring and popular books of Indian medicinal plants. Under his tutelage, several

indigenous drugs became officially included in the Indian Pharmacopoeial List 1946. He also compiled the first Indian Pharmacopoeia in 1955, comprising many indigenous drugs that he had studied at the School of Tropical Medicine. (4)

#### **Pioneering work on *Rauwolfia serpentina***

In 1933 it was found by conducting experimental studies in animals, that an alkaloid obtained from the plant *Rauwolfia serpentina* (sarpagandha) showed central depressant properties and lowered blood pressure. Thus, Chopra indirectly gave the world its first valuable anti - hypertensive drug - reserpine. On the basis of Chopra's work, Dr. Rustom Jal Vakil did extensive clinical research in Bombay and published his paper on *Rauwolfia*, in the British Heart Journal (1948). (5)

#### **Role in promotion of Indian Pharmaceutical System**

Chopra is appropriately regarded as an honest Indian scientist and investigator who did not allow nationalism to interfere with his scientific work. Chopra saw the vision of India's pharmacy development of today at time when most medical professionals remained utterly unaware of the aim, scope, and the province of the modern pharmacy. He had to face considerable resistance from certain sections of the medical and chemical professionals when he initiated his pharmacy reform movement in the 1930s. However, his movement could not be stopped by critics. The credit for developing modern pharmacy in India goes to Chopra. There was tremendous development of ethical drug manufacture under the brilliant leadership of Chopra. These immense contributions of Chopra has earned him the name of 'Father of Indian Pharmacology'. (6)

#### **Chairperson of the Drugs Enquiry Committee 1930**

When the Government of India constituted the Drugs Enquiry Committee in 1930, Colonel Chopra was chosen to chair it. The recommendations of the committee greatly brought into force several of the crucial pharmaceutical developments in the country. (7) The Drugs Act 1940 was enacted, which later changed to Drugs and Cosmetics Act 1940 in 1962. The scope of the Act was further widened through the 1964 amendment; wherein the provisions were expanded to bring Ayurvedic (including Siddha) and Unani drugs under its domain. The Indian Pharmacopoeial List of 1946 was published as an Indian adjunct to the British Pharmacopoeia 1932. The Indian Pharmacopoeia publication started with the 1955 edition. The Pharmacy Act 1948 was established for control of pharmacy. All these were a direct result of the recommendations of the Chopra Committee. It is no exaggeration to say that in the 20th century pharmaceutical records of India, the establishment of the Drugs Enquiry Committee under Ram Nath Chopra proved to be the most noteworthy event.

#### **Remarkable achievements of Sir Ram Nath Chopra**

As written by Sir Chopra himself in the article 'Problems and Prospects of a Pharmacological Career in India' in the journal 'Annual Review of Pharmacology' in 1965 –

"As a basic medical science, pharmacology is now taught in 64 medical schools in India and in other schools teaching other health professions such as nursing, dentistry, pharmacy, veterinary science, etc. Pharmacologists in India are being increasingly called upon to apply their skill in pharmaceutical

industries interested in the development of new drugs for medical and veterinary use, for the control of pests, and for the promotion of plant growth. Research institutes are needing the services of pharmacologists to study the action of poisons and to find suitable antidotes, to study radiation damage and its prevention, and to maintain quality control on drugs, etc. which cannot be adequately standardized by chemical means. All these developments followed in the wake of the small beginning that I was privileged to make as early as 1922.” (8)

### Recognition and legacy of Sir Ram Nath Chopra

Ram Nath Chopra's contributions and position were properly recognized. He received many prestigious honours. During Dr. R. N. Chopra's joining as a Professor at the Calcutta School of Tropical Medicine in 1921, he held the rank of a Major in the Indian Medical Service. He got to be Lieutenant - Colonel in 1927. It was his work on the Drugs Enquiry Committee and his expert services to the School that brought to Colonel Chopra recognition in the New Year Honours list of January 1934 by the award of Companion of the Order of the Indian Empire (CIE). He was made Honorary Physician to His Majesty the King with the Brevet rank of Colonel in 1935. In 1935, he was elected a Fellow of the Asiatic Society of Bengal and in 1939 he became the Vice - President of the Society; and he also received Barclay medal of the Society. He was elected President of the National Institute of Sciences of which he had been a Foundation Fellow. From the School and the University of Calcutta, Colonel Chopra was awarded the Minto Medal, Mouatt Medal, Coatos Medal, etc. He was awarded the Sc. D. degree of Cambridge University for his contributions to the science of medicine. He was elected as a Fellow of the Royal College of Physicians of London. He was elected to Honorary Memberships of the American Society for Pharmacology and Experimental Therapeutics and the Pharmaceutical Society of Great Britain and as a corresponding member of the Belgian Society of Tropical Medicine. Brevet Colonel Ram Nath Chopra was conferred the Knighthood in the 1941 New Year Honours list. (9) Colonel Chopra became the general president of the Indian Science Congress (1948) having earlier been twice sectional President in Physiology and Medical Sciences of the Congress. The Indian Pharmaceutical Association elected Sir Chopra as an honorary member and conferred on him the Dr. E. R. Squibb award for his outstanding contributions.

### 3. Conclusion

Due to his unmatched accomplishments towards furthering research in Pharmacology and also because of his immense contribution towards systematic studies on Indian medicinal plants, Sir Ram Nath Chopra is aptly remembered as the 'Father of Indian Pharmacology'. He paved the way for future generations for carrying out scientific in the field of Pharmacology and development of medicines.

### References

- [1] Singh H. Sir ram nath chopra: A profile. J Young Pharmacists.2009; 1 (3): 192.
- [2] Singh H. RAM NATH CHOPRA (1882 - 1973) – A VISIONARY IN PHARMACEUTICAL SCIENCE.

- [3] INDIAN JOURNAL OF HISTORY OF SCIENCE. Sir Ram Nath Chopra | RCP Museum [Internet]. [cited 2024 Aug 15]. Available from: <https://history.rcplondon.ac.uk/inspiring-physicians/sir-ram-nath-chopra> (PDF) Sir Ram Nath Chopra (1882 - 1973). Postal stamps released on Sir Ram Nath Chopra, India and Sarpagandha, India - - 1997. ResearchGate [Internet]. [cited 2024 Aug 15]; Available from: [https://www.researchgate.net/publication/7206396\\_Sir\\_Ram\\_Nath\\_Chopra\\_1882\\_1973\\_Postal\\_stamps\\_released\\_on\\_Sir\\_Ram\\_Nath\\_Chopra\\_India\\_and\\_Sarpagandha\\_India\\_-\\_1997](https://www.researchgate.net/publication/7206396_Sir_Ram_Nath_Chopra_1882_1973_Postal_stamps_released_on_Sir_Ram_Nath_Chopra_India_and_Sarpagandha_India_-_1997)
- [4] Pd D. Sir Ram Nath Chopra (1882 - 1973). The Journal of the Association of Physicians of India [Internet].2015 Mar [cited 2024 Aug 16]; 63 (3). Available from: <https://pubmed.ncbi.nlm.nih.gov/26540861/>
- [5] Brevel - Colonel Sir Ram Nath Chopra. British medical journal [Internet].1973 Sep 8 [cited 2024 Aug 16]; 3 (5879). Available from: <https://pubmed.ncbi.nlm.nih.gov/4582386/>
- [6] R K. Ram Nath Chopra - - father of Indian pharmacology. Pharmacy in history [Internet].2010 [cited 2024 Aug 16]; 52 (2). Available from: <https://pubmed.ncbi.nlm.nih.gov/21688729/>
- [7] Internet Archive [Internet]. [cited 2024 Aug 16]. Report of the Drugs Enquiry Committee, 1930 - 31 : R N Chopra, Chairman; J F Caius, Member; H Cooper, Member : Free Download, Borrow, and Streaming. Available from: <https://archive.org/details/dli.ministry.20500>
- [8] Chopra RN. Problems and Prospects of a Pharmacological Career in India. Annu Rev Pharmacol.1965 Apr; 5 (1): 1–9.
- [9] August 1882Gujranwala RNC, Province P, June 1973Srinagar BI, Jammu, Kashmir, science I forFather of IPD of, et al. Ram Nath Chopra - Wikipedia [Internet]. [cited 2024 Aug 16]. Available from: [https://en.wikipedia.org/wiki/Ram\\_Nath\\_Chopra](https://en.wikipedia.org/wiki/Ram_Nath_Chopra)