

# THE IMPORTANCE OF PHARMACEUTICAL CHEMISTRY IN THE INDUSTRIAL ENVIRONMENT IN MOROCCO

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## **Introduction**

From the discovery of the molecule to its commercialization, pharmacists are ubiquitous in the pharmaceutical industry. Pharmaceutical chemistry is applied to the design, isolation and analysis of synthetic or naturally occurring active substances, it's at the crossroads between pharmacology and chemistry. It is concerned with the medicinal properties of chemical compounds. Pharmaceutical chemistry covers several disciplines : biochemistry, molecular chemistry, pharmacology, physical chemistry, pharmacognosy, organic chemistry and statistics. It participates in the development, analysis, research and synthesis of therapeutic chemical bodies.

It's also called medical, therapeutic or medicinal chemistry.

## **Base**

The pharmaceutical chemistry in Morocco plays an important role in our establishments but not in the pharmacies but in the industrial and laboratories sectors. At the beginning of the post-independence period, Morocco imports almost all medicines. However, the fact that these imports are no longer able to satisfy local demand, the government has prompted to take charge of the situation.

The attractiveness of the pharmaceutical sector in Morocco seduces multinationals of weight. Indeed, the lter is classified as « EURO ZONE» The national pharmaceutical products are exported to a large number of European countries, notably France, Germany but also the countries of North America without forgetting Africa, Asia and Arab world.

This international positioning means that the Moroccan pharmaceutical sector occupies second place in Africa after the Republic of South Africa. Whereas Morocco had only 8 industrial units. Today the pharmaceutical industry provide nearly 40 000 direct and indirect jobs, 95% of the staff being are Moroccan. The share of imported pharmaceutical products in Morocco is steadily increasing, reaching 35% compared to 20% in the 1990s. its estimated that it will reach 50% by 2020, the pharmaceutical industry will remain frozen on the chemical.

Pharmaceutical laboratories in Morocco: there are 35 pharmaceutical laboratories, in which the nationals are slightly better represented with 23 laboratories. The majority is located in Casablanca and Rabat.

Pharmaceutical chemistry in industry has deal with pharmacologically active substances can be divided into natural products and synthetic drugs. Natural products are of plant or animal origin, while synthetic medicines are obtained by microbiological and chemical techniques. Also antibiotics, steroids and peptide hormones, vitamins, enzymes, prostaglandins and pheromones are important natural products, etc.

Research is increasingly focusing on synthetic drugs, given recent advances in molecular biology, biochemistry, pharmacology and computing.

Takin into account everything above, the average conventional equipment for laboratories includes:

\*titrators (to determine the concentration for acid-base, oxidation-reduction and argentimetry assays etc) with the highest accuracy and the highest productivity. For a solution adapted precisely to your needs and your budget. HTDS (High Tech Detection Systems) complete range of titrators as well as accessories covering the majority of titration applications.

\*Measurement of density required an active principle which is dissolved in a solvent (particular for syrups). Raw material or finished products has a specific density which must be followed. HTDS provides densitometers ranging from simple tabletop models to portable solutions or multi-parameters for simultaneous quality control of the density, fraction, PH and color.

\*Measurement of the acidity and alkalinity of a fluid holds a prominent place in the pharmaceutical production process. This is an indication of proper dosage which is followed throughout the production process. HTDS offers you precise and fast systems adapted to your applications.

For the drug analyzes historically, chromatography is the main analytical tool of the pharmaceutical industry. Chromatography techniques coupled with mass spectrometry are increasingly sought after by pharmaceutical companies because of an increased focus on biochemical and biological substances for the development of new drugs.

Physico-chemical tests on pharmaceutical products (tablets, suppositories, capsules) are essential steps before they can release batches. It is therefore important to have solutions in accordance with pharmaceutical standards, robust and reliable.

**Conclusion** The directorate for medicinal products and pharmacy includes:

- The physico-chemistry department.
- The quality assurance department.
- The biological testing department.
- The pharmaceutical division which groups :
  - The visa service, approvals and authorizations
  - The department of Narcotics
  - The service sector
  - The service of economic activities

Today, Morocco produces almost a half of its drug needs and exports up to 50% of its production. Take it into consideration, in order to promote the cost of care, necessity of growth of pharmaceutical industry to facilitate access to medicines, Morocco has embarked on a process of reform that puts generics at the center of priorities. Pending the implementation of this policy, pharmacists and doctors compete for strategies. While some are looking for new structures, others are opting the production of generics.

#### References

1 :L'industrie pharmaceutique marocaine et la production des generiques by Amine Nizar  
<http://www.mawarid.ma/document-1172.html>

Art2 :L'industrie pharmaceutique by Keith D. Tait  
<http://www.ilocis.org/fr/documents/ilo079.htm>

Art3 :Direction du médicament et de la pharmacie  
[http://pharmacie.ma/page/91/organisme\\_direction\\_du\\_medicament\\_et\\_de\\_la\\_pharmacie](http://pharmacie.ma/page/91/organisme_direction_du_medicament_et_de_la_pharmacie)