FACULTY OF PHARMACY
UNIVERSITY OF KHARTOUM

HISTORY:

The Faculty of Pharmacy, University of Khartoum, is one of of the new Faculties of Pharmacy in the area. It was established in July 1964. The idea of instituting pharmaceutical education in Sudan started in 1954, when the Ministry of Health invited Professor M.M. Motawi, Dean of the Faculty of Pharmacy of Alexandria to visit the Sudan, and to report on the possibility of establishing a school of pharmacy in Sudan. Prof. Motawi recommended the establishment of the School of Pharmacy.

In January 1961 the commission composed of Prof. W.H.Linnell (Dean of the School of Pharmacy, University of London), Dr. L.G. Goodin (Director of the Wellcome Laboratories of Tropical Medicine) and Prof. Amin Haddad (Director of the School of Pharmacy, American University of Beirut) visited the Sudan at the request of the University of Khartoum and the Ministry of Health and examined the possibility of instituting pharmaceutical education in the Sudan. The commission confirmed the need for pharmacists and for the development of pharmacy as an integral part of the expanding health services. The commission recommended the establishment of a School of Pharmacy within the Faculty of Medicine, University of Khartoum. The report of the commission was adopted by the Senate and the Council of the University of Khartoum and the School of Pharmacy was established accordingly.

Prof. P.F. D'Arcy was invited to become the first Director of the School of Pharmacy and he was charged with the inauguration of the new School, the planning of its buildings, the recuritment of its staff and in addition he was asked to prepare the academic curriculam and the regulations for the new degree of Bachelor of Pharmacy (Khartoum). The School of Pharmacy started as a School within the Faculty of Medicine, but it soon became apparent that in order to retain administrative indepencence and autonomy within the existing frame-work of the University the School of Pharmacy would have to become a separate faculty. This was achieved in the summer of 1963 and the Faculty started teaching in August 1964.

NUMBER OF STUDENTS ADMITTED INTO THE FACULTY:

The following table shows the number of students admitted into the Faculty of Pharmacy since its establishment in 1964:

1964 - 24 students
1965 - 19 "
1966 - 22 "
1967 - 20 "
1968 - 25 "
1969 - 34 "
1970 - 52 "

It can be noticed that this year 1970/71 and in the previous year 1969/70 the number of students admitted into the Faculty increase enormously. This expansion in the pharmaceutical education is to meet the demand for pharmacists in the Ministry of Health which is expanding its pharmaceutical services.

NUMBER OF GRADUATES FROM THE FACULTY:

The following table shows the number of graduates from the Faculty of Pharmacy:

1968 - 18 students
1969 - 19 "
1970 - 20 "

All the graduates were employed by the Faculty, Ministry of Health, Industrial Pharmaceutical Laboratories and retail pharmacy. The salaries are on the high side ranging between 100 and 120 Sudanese Pounds.

COURSE OF STUDY:

Students study for five years to obtain the Bachelor of Pharmacy Degree of the Univetsity of Khartoum. One year is spent in the Faculty of Science studying for the Preliminary Examination and four years in the Faculty of Pharmacy. The students attend the following main branches in pharmaceutical sciences in the Faculty of Pharmacy:

Pharmaceutics;

Physical Pharmacy, Pharmaceutical Microbiology, Pharmaceutical Technology.

Pharmaceutical Chemistry:
General Chemistry, Analytical Chemistry, Organic Chemistry, and Medicinal Chemistry.

Pharmacognosy:
Taxonomy of Plants, Phyto-chemistry, and Applied Pharmacognosy.

Pharmacology:
Physiology, Elementary Anatomy, Histology, Biochemistry, Toxicology, Therapeutics and General Pharmacology.

SYLLABUSES:
The syllabus for the degree of B.Pharm. is based upon the B.Pharm.(Hons.), University of London and on the B.Pharm degrees of the Universities in the U.A.R.

A copy of the syllabuses of the Faculty of Pharmacy is appended.

However after the experienced we have gained in teaching pharmaceutical sciences in the last six years and after surveying the requirements of our country and the standards of pharmacists required, we are revising our syllabuses to bring it up-to-date and in the same time to fulfill our requirements. The new syllabus will provide for a good grounding in the basic techniques in pharmacy as well as specialized studies in Hospital Pharmacy, Pharmaceutical Microbiology, Industrial & Control of Pharmaceuticals.

PUPILAGE:
At the present our students are required to complete a period of practical experience during their academic courses. They work for a minimum of six weeks during each long vacation after the second year in an approved retail pharmacy, hospital pharmacy and in an industrial pharmaceutical laboratory. In this way a student will attain a minimum of twenty-four weeks practical experience in pharmacy. I believe that this system is adequate for pupilage especially in a developing country where there is a great demand for pharmacists.

POST GRADUATE STUDIES:

The Faculty of Pharmacy instituted the degrees of Master of Pharmacy and Doctor of Philosophy in various pharmaceutical subjects by research. In my opinion as regards the future development of post graduate studies, such studies have to be guided towards the following lines:

1. Solving the problems which face the pharmaceutical industry which started in Sudan recently.
2. To carry on studies on the stability of drugs under our climatic conditions.
3. Investigations in the medicinal plants of Sudan especially for a country which is rich in medicinal plants and covering an area of a million square miles at different climates.

It is very important to note that the time has come to the establishment of a post graduate diploma of pharmacy, which have to be awarded after specified course of part-time or full time studies in various branches of pharmacy, e.g. a diploma in hospital pharmacy, a diploma in pharmaceutical technology, a diploma in drugs analysis, a diploma in microbiology and a diploma in forensic sciences. Such courses are intended for pharmacists who were already established in pharmaceutical practice and wish to obtain a higher qualification in their specialised fields. Such diplomas will have a very remarked effect on the profession of pharmacy.

In the meantime the Faculty is thinking seriously of creating a short refreshing courses every year for retail pharmacists in order to be able to follow the quick development in the fields of pharmaceutical sciences.

HOSPTIAL PHARMACY:

The Ministry of Health in its Five Years Plan 1970/75 is in need of 250 pharmacists to coup with the future requirements of pharmaceutical services in the country. The number of pharmacists in the Ministry of Health now is not more than 20 pharmacists. The present acute shortage of pharmacists in the Ministry of Health is due to the terms of service in the Ministry of Health, but recently after the 25th May

Revolution and the improvement of the terms of service of pharmacists in the Ministry of Health, Hospital pharmacy started to be very attractive.

In order to provide well-trained hospital pharmacists, great emphasis should be stressed on under graduate courses along with the creation of a post graduate diploma in hospital pharmacy. The Faculty intending to start hospital pharmacy diploma next academic session for pharmacists who joined the Ministry of Health.

INDUSTRIAL PHARMACY:

The establishment of pharmaceutical industries in Sudan was a logical step in a developing country whose medical services are expanding to meet the health needs of our Sudanese people. At present there are three small factories in the Sudan. Our attention is being paid to develop the courses in industrial pharmacy (included now in the course of pharmaceutics) by creating a new department of pharmaceutical technology to produce graduates with a standard knowledge to fulfill the requirements of the developing industry. Our students should spend more time in pharmaceutical laboratories to gain the experience required. The pharmaceutical industry can always cooperate with the Faculty of Pharmacy by undertaking joint researches and pharmaceutical developing work, in particular in solving any problems that meet the industry and also in devicing formulations and packaging suitable for tropical climates.

DRUG QUALITY CONTROL:

The drug quality control is undertaken now by the chemical laboratories, Ministry of Health. Theses laboratories have to be expanded to undertake full drug analysis. The courses in analytical chemistry, pharmaceutical analysis and microbiology for under graduates are standard courses. In order to produce high calibre chemist able to control and supervise drug quality control laboratories in the Ministry of Health and in the industry, the Faculty of Pharmacy is intending to establish a post graduate diploma in drug analysis.

To summarise the above:

1. The under graduate course for the degree of B.Pharm. discovered in five years.
2. The staff of the Faculty of Pharmacy at present are continuosly revising the syllabuses to follow the new trends in teaching pharmaceutical sciences .
3. Creation of post graduates diplomas in hospital pharmacy, pharmaceutical technology, drug quality control are expected to start next academic session.
4. The Faculty confers post graduate degrees of M.Pharm.& Ph.D. in different pharmaceutical sciences by courses and research.

الجمهورية العربية السورية
جامعة دمشق

A Statement About the Faculty of Pharmacy of Damascus

Prepared by Prof. Dr. Moustafa Dakkak (Dean)

1- History: The Faculty of Pharmacy of Damascus was established in 1903, When the Turkish Government gave an order that a school of medicin be found in Damascus, dependent of the University of Istanbul. This school consisted of 2 sections: medicin and pharmacy It was transported to Beirut in 1915. The number of graduates during this period was 289 pharmacists.

A new school of medicin was established in Damascus in 1919 after the end of world war I. This consisted of 3 sections: medicin, pharmacy and dentistry. The language of the school was eversince the Arabic language. Until 1958 pharmaceutical education in the section of pharmacy was accomplished in 4 years, (a preparatory year in the faculty of science and 3 years in the section of pharmacy). The section of pharmacy consisted of 2 departments: department of pharmaceutics and that of pharmaceutical chemistry. In 1958 a fifth year was added. In January 1962, the section of pharmacy gained its idependence and became a faculty formed of 4 departments: pharmaceutics, pharmacognosy, pharmaceutical chemistry and analytical chemistry.

2- Subjects of study and training: 31 different subjects are taught to the students. Table I shows the subjects taught by every department, while table II shows the subjects taught year by year. In addition the student is supposed to effectuate during the summer period atraining in a pharmacy for 250 hours after the first year, 250 hours after the second year and a training in a factory, a hospital or a laboratory for 250 hours after the third year.

Table No. 1

Department	Subject	Year	No. of Hours Th.	Pr.
Analytical Chemistry	physical chemistry	1	1	2
	Ananlytical chemistry	1	2	4
	analytical chemistry	1	1	2
	toxicology	4	2	2
Pharmacognosy	General botany	1	1	2
	pharmacognosy	1	2	2
	pharmacognosy	2	2	2
	phytochemistry	3	2	3
	applied pharmacognosy	4	2	2
Pharmaceutical chem.	Organic chemistry	1	3	3
	organic chemistry	2	3	3
	Pharmaceutical chem:	2	2	2
	pharmaceutical chem.	3	3	2
	bacteriology	2	2	2
	parasitology	3	2	2
	biochemistry	3	3	2
	bromatology	4	2	2
	drug control	4	2	2
Pharmaceutics	pharmaceutics	1	2	2
	pharmaceutics	2	3	2
	pharmaceutics	3	2	3
	pharmaceutics	4	2	2
	industrial pharmacy	'	2	2
	pharmacology	2	2	-
	pharmacology	3	2	2
	Biostatistics	3	1	-
	biological assay	4	2	-

other subjects such as: Anatomy and physiology, language, compta bility, psychology and sociology, hygien, history and legislation are not attached to any of the departments.

Table No.II

Subject	No. of hours Th.	Pr.
Preparatory Year		
Physics	4	3
General chemistry	3	4
Botany	2	4
Zoology	2	4
Language	2	-
Principles of mathematics and mechanics	2	-
Arab society	1	-
Total	16	15
First Year		
Pharmaceutics	2	2
Pharmacognosy	2	2
General botany	1	2
Analytical chemistry	2	4
Organic chemistry	3	3
Physical chemistry	1	2
Anatomy, physiology and histology	3	
Language	2	
Total	16	14
Second year		
Pharmaceutics	3	2
Pharmacognosy	2	2
Analytical chemistry	1	2
Organic chemistry	3	3
Pharmaceutical chemistry	2	2
Pharmacology	2	-

Subject	No. of hours Th.	Pr.
Bacteriology	2	2
Comptability	2	-
Language	1	-
Total	18	13
Third year		
Pharmaceutics	3	2
Phytochemistry	2	3
Biochemistry	3	2
Pharmaceutical chemistry	3	2
Parasitology	2	2
Biostatistics	1	-
Psychology and sociology	1	-
Language	1	-
Total	17	13
Fourth year		
Pharmaceutics	2	2
Industrial pharmacy	2	2
Bromatology	2	2
Drug control	2	2
Toxicology	2	2
Biological assay	1	-
First aid	1	-
Applied pharmacognosy	1	2
Hygien	3	-
History and legislation	2	-
Language	1	
Total	19	12

3- Budjet and space: The attachement of the section of pharmacy to the faculty of medcicine during all these years caused that the personnel in the faculty, the space occupied by the faculty and the budjet are reduced. The section of pharmacy was treated in the past as a department of the faculty of medicine and even after independence the faculty of pharmacy was treated as a small faculty. This caused that the practical work of several courses is donne in the same laboratory. Table No. III shows the area of each laboratory and table IV shows the practical courses donne in each laboratory.

Table III

Laboratory	Area/sq. m.
Pharmaceutical chemistry	165
Biochemistry	65
Toxicology	44
Pharmacognosy	65
Pharmaceutics	110
Organic chemistry	52
Total	501

Table IV

Laboratory	Subject	Year	Group	Hours	Total
Pharmaceutical chem.	analytical chem.	1	3	4	12
	analytical chem.	2	4	2	8
	pharmaceutical chem.	2	4	2	8
	pharmaceutical chem.	3	3	2	6
	phytochemistry	3	3	3	9
	total				43
Pharmacognosy	pharmacognosy	1	3	2	6
	botany	1	3	2	6
	pharmacognosy	2	4	2	8

Laboratory	Subject	Year	Group	hours	total
Pharmacognosy	Applied pharmacognosy	4	3	2	6
	bacteriology	2	4	2	8
	parasitology	3	2	2	6
	total				38
Biochemistry	biochemistry	3	6	2	12
	bromatology	4	5	2	10
	total				22
Pharmaceutics	pharmaceutics	1	3	2	6
	pharmaceutics	2	4	2	8
	pharmaceutics	3	3	3	9
	pharmaceutics	4	3	2	6
	industrial pharmacy	4	3	2	6
	pharmacology	3	6	2	12
	total				47
Toxicology	toxicology	4	5	2	10
	physical chemistry	1	6	2	12
total					22
Organic chemistry	organic chemistry	1	6	3	18
	organic chemistry	2	7	3	21
	Drug control	4	5	2	10
	total				49

4- Staff and administration: After the independence of the faculty the staff was increased, but the administratives are rather reduced in number. They are the Dean, the Vice Dean, the Secretary and two assistants. Table V shows the number of staff/department

5- Students : Table VI shows the distribution of the students, while table VII shows the evolution of the number of students since 1964.

6- Period of study and examinations: To enter the Faculty of

Table V

	Pharmaceutics	Pharmacognosy	Pharm. chem. anal. chem.
Prof.	1	1	1	1
Assistant prof.	-	-	2	1
Lecturer	5	2	2	2
Instructor	1	1	6	2
Total	7	4	11	6

Table VI

Preparatory	1st. Year	2nd. Year	3d. Year	4th. Year	(1970) total
285	119	98	121	100	723

Table VII

Year	1964	1965	1966	1967	1968	1969	1970
Preparatory	99	130	151	138	162	210	285
Faculty of pharmacy	230	250	254	335	365	409	438

pharmacy of Damascus the student must have the syrian baccalaureat with good notes Table number VIII shows the average of notes that permits the student to enter the Faculty of Pharmacy of Damascus

Table VIII

Year	1964	1965	1966	1967	1968	1969	1970
Average	70	66	68	65	71	69	67

The study in the first semester begins usually at the beginning of october to end at the beginning of february. The study in the second semester begins at 15 - 20 february to end at 15 may. We have two examinations one in june and the other in september, one can pass from one year to the other even when one fails in two courses. The student in this case can pass the examinations in these two courses in the following year. Our graduation system is as follows: 91% - 100%,honorable; 81% - 90%, excelent,

71% - 80%, very good; 61% - 70%, good; 51% - 60%, acceptable. The student passes his examinations when he obtains 50%. Table IX shows the number of graduates between 1964 and 1969

Table IX

Year	1964	1965	1966	1967	1968	1969
Graduates	42	75	38	61	72	77

7 - The Faculty of Pharmacy of Damascus is in good relations with the other pharmaceutical institutes in the S. A. R. such as hospital factories of pharmaceutical preparations, import and export company chemical industry, etc. Table X shows the number of pharmacists and pharmacies in the S.A.R.

Table X

Pharmacists registered in the ministry of health	951
pharmacie	466
In scientific agencies	59
In pharmaceutical stores	326
In laboratories for biological analysis	26
In the ministry of health	71
In the faculty of pharmacy	28

8- Development of the faculty: The faculty is now discussing the possibility of reorganising its courses to face the development of pharmacy in new fields such as the industrial pharmacy, drug control and hospital pharmacy. The new courses aim also to reduce the number of hours for theoretical studies and increase the number of hours for practical studies. Seminars are also added together with post-graduate studies in some important fields.