

Magnifico Rettore,

Ch.mo Prof. Pierluigi Lelli Chiesa,

Ill.mo Prof. Vittore Verratti,

facendo seguito agli incontri con la delegazione dell'Università di Kassala (Sudan) e nell'ottica di contribuire al progetto di Cooperazione internazionale in corso e ad altri futuri cui potremmo partecipare, ho il piacere di inviare in calce alla presente alcune proposte pervenute dai docenti del Dipartimento di Farmacia.

Tutti i docenti sono disponibili per definire con voi e con i colleghi di Kassala modifiche ed integrazioni delle proposte stesse.

Cari saluti.

Luigi Brunetti

1. Proponent: prof. Christian Celia, Associate Professor of Pharmaceutical technology and Specialist in Hospital Pharmacy

Production of galenic drugs

Local production of galenic drugs (galenicals) for oral drug delivery for Sudan personalized medicine: Capsules, cream, gels and suspensions based on endemic ingredients, that have been collected from local plants, and commercial/low cost additional ingredients, donated by international communities, onlus and international foundations, will be used to make drugs useful to treat gastro-intestinal, cutaneous, vaginal and infection diseases. The galenic drugs will be prepared by using easy-to-use and low costs apparatus and local Pharm.D. degree will receive the specific instruction to make these drugs. Ud'A will activate collaborate with the local staffs to trainee personnels and students for the formulation and control of galenic drugs (galenicals) as well as to build-up a local laboratories for the production of drugs. The production of galenic drugs will be carried out by using local plants and ingredients in agreement with low cost and budget, the respect of local culture, tradition, and environment, and the objective to maintain a circle local economy

2. Proponents: Proff. Claudio Ferrante, Luigi Menghini, Dr. Simonetta Cristina Di Simone, members of the Medicinal Plant Unit (MPU)

Online Course: "From Ethnomedicine to Phytotherapy" (1 ECTS, 10 hours):

This online course entitled From Ethnomedicine to Phytotherapy is designed to provide foundational and applied knowledge on medicinal plants, with special emphasis on the rich ethnobotanical heritage of Sudan. Over approximately 10 hours of instruction, participants will explore the identification, pharmacological properties, traditional uses, and appropriate preparation of simple herbal remedies derived from Sudanese medicinal plants. The course integrates principles of ethnomedicine, pharmaceutical botany, phytochemistry, and evidence-based phytotherapy to support the safe and effective use of herbal medicines. Particular attention will be given to the preparation of simple formulations intended as first-

line therapeutic support for self-medication in the management of acute and chronic conditions commonly encountered in local communities. The program aims to promote the sustainable and scientifically grounded use of traditional medicinal resources while fostering awareness of the quality, safety, dosage, and potential interactions of herbal products. The course is intended for university students, healthcare professionals, and individuals interested in the integration of traditional Sudanese medicine with modern pharmaceutical knowledge.

3. Proponents: Proff. Luigi Brunetti, Sheila Leone, Lucia Recinella, Pharmacologists

Drug safety and the scientific evaluation of local natural resources.

Background: In healthcare systems, traditional medicine and herbal remedies represent a primary source of healthcare for a large part of the population. However, the widespread and often unmonitored use of these natural products, frequently combined with conventional Western drugs, poses significant and underestimated toxicological risks. This scenario is further complicated by the lack of structured pharmacovigilance networks to track Adverse Drug Reactions (ADRs) and toxicities.

Vulnerable populations, specifically pregnant women, fetuses, and newborns, are at the highest risk. In maternal-fetal medicine, the lack of evidence-based data regarding the safety, dosage, and potential embryotoxic or teratogenic effects of both local medicinal plants and conventional pharmaceuticals represents a critical public health challenge.

Objectives: This proposal aims to establish a bilateral collaboration with the University of Kassala through delivering specialized scientific training to local medical/healthcare staff and launching joint research initiatives, by focusing on drug safety and the scientific evaluation of local natural resources.

Category	Common Examples	Objectives
Clinical pharmacovigilance and drug safety	Interactive lectures, clinical case-study analysis, and seminars on monitoring Adverse Drug Reactions (ADRs)	General principles of Adverse Drug Reactions (ADRs) and drug safety monitoring.
Drug-drug and drug-herb interactions	Interactive lectures, clinical case-study analysis, and seminars on preventing drug-drug and drug-herb interactions.	Major drug-drug and drug-herb interactions in clinical practice. Pharmacological profiles of conventional therapies in maternal-fetal medicine.
Pharmacological Screening of Local Flora	Methodological lectures on the pharmacology of local traditional remedies.	Pharmacology of traditional local herbal products.
Phytovigilance	Methodological lectures on the toxicological risk assessment of local traditional remedies.	Phytovigilance: monitoring adverse effects linked to traditional local herbal products. Toxicological risks of unstandardized natural extracts in vulnerable populations (pregnant women, fetuses, and newborns).

4. Proponents: Proff. Giustino Orlando, Annalisa Chiavaroli, Pharmacologists.

Online lessons (8-10 hours) on over-the-counter (OTC) drugs

Category	Common Examples	Typical Uses
Pain relievers / fever reducers	Acetaminophen (Tylenol), Ibuprofen (Advil, Motrin), Aspirin, Naproxen (Aleve)	Headaches, fever, muscle aches, minor injuries
Allergy medications (antihistamines)	Loratadine (Claritin), Cetirizine (Zyrtec), Fexofenadine (Allegra), Diphenhydramine (Benadryl)	Seasonal allergies, itching, hives
Cold and cough medicines	Dextromethorphan, Guaifenesin, combination cold remedies	Cough, congestion, cold symptoms
Decongestants	Pseudoephedrine (Sudafed), Oxymetazoline nasal spray (Afrin)	Stuffy nose, sinus congestion
Heartburn and indigestion medicines	Calcium carbonate (Tums), Omeprazole (Prilosec OTC), Famotidine (Pepcid)	Acid reflux, heartburn
Anti-diarrheal medicines	Loperamide (Imodium), Bismuth subsalicylate (Pepto-Bismol)	Diarrhea, upset stomach
Laxatives	Bisacodyl (Dulcolax), Docusate, Polyethylene glycol (Miralax)	Constipation
Motion sickness medicines	Dimenhydrinate (Dramamine), Meclizine	Motion sickness, dizziness
Skin treatments	Hydrocortisone cream, antifungal creams	Rashes, itching, athlete's foot

5. Proponent: Prof. Barbara de Filippis, Pharmaceutical chemist

Online lessons regarding pharmaceuticals and toxicology of drugs

antidepressants

antipsychotics

anxiolytic-hypnotics

pain therapy

general and local anesthetics

treatment of arterial hypertension

treatment of gastric and allergic diseases

overview of drugs that cross the placenta and may be useful in fetal therapy and/or toxic.

6. Proponent: Prof. Susi Zara, Anatomist

Online lessons regarding Blood cells analyses

Indices and ranges found in the most common hematology reports

Populations of the cellular component of blood, the organic and inorganic components of plasma, and their changes under pathological conditions

Interpretation of blood analyses results

7. Proponent: Proff.: Piera Di Martino, Maria Rosa Gigliobianco - Pharmaceutical technology

Prof. Piera Di Martino and Dr. Maria Rosa Gigliobianco have extensive expertise in pharmaceutical and chemical sciences, particularly in pharmaceutical technology, formulation development, drug delivery systems, characterization of pharmaceutical materials, and quality evaluation of medicinal products. Their research activities have focused on the development and optimization of innovative pharmaceutical formulations, including topical and dermatological preparations, with special attention to stability, efficacy, safety, and accessibility.

Building on this experience, we propose a collaborative initiative aimed at the development and optimization of topical galenic preparations tailored to the healthcare needs of Sudan. The collaboration could focus on the formulation of affordable, stable, and locally manufacturable topical medicines for dermatological diseases, wound care, and other priority therapeutic applications. The project would combine scientific expertise, pharmaceutical technology, and capacity-building activities to support sustainable healthcare solutions and improve access to quality medicines.

In addition, our team is available to participate in international research and innovation projects, including Horizon Europe and other collaborative funding programs. We are also willing to provide training courses, workshops, and academic lectures focused on pharmaceutical compounding, formulation science, quality control, and technology transfer. Through these activities, we aim to strengthen local competencies, facilitate knowledge exchange, and support the development of pharmaceutical manufacturing capabilities in Sudan.

This partnership would create a valuable framework for scientific cooperation, technology transfer, and innovation, ultimately contributing to improved healthcare outcomes and sustainable pharmaceutical development in the region.