(suppositories) and the vagina (globules). When determining the bioavailability of a drug substance by any method, a number of conditions must be precisely met, the most important of which are the timing of taking the liquids for analysis and the frequency of sampling.

The bioavailability of the medicine can be determined in healthy human volunteers. These can be men aged between 20 and 40 years without gastrointestinal, hepatic, renal, cardiac or thyroid diseases. Volunteers stop taking other medicines at least 1 week before the study, and stop taking drugs that affect enzyme and hormone activity for 1 month. Volunteers do not eat (or only use a specially selected diet) for 4-12 h before the experiment and for another 2 h after taking the medication. Strict standardization extends to other conditions of the experiment: amount of water drunk (effect on gastrointestinal motility), urine pH (effect on drug excretion kinetics), physical activity and body position (state of anxiety, much less stress), etc.

Due to the complexity of determining the bioavailability of drugs and for ethical reasons, trials are tended to be carried out in animal models (in vivo) and by in vitro tests. One of the main objectives of experimental biopharmacy is to develop such in vitro tests and such in vivo animal models that would allow comparison of the results with those of human studies and be meaningful due to the indisputable correlation identified. Such tests and models offer great potential not only for establishing bioavailability in new drug development and studying the effects of individual pharmaceutical factors, but also in ongoing drug quality control.

Conclusions. Knowledge of the basics of biopharmacy in relation to pharmacokinetics:

- the use of drugs in the body can be determined in a number of ways;
- facilitates the determination of rational dosages of drugs for their use in therapeutic practice;
- makes it possible to clarify indications and contraindications for the use of drugs;
- facilitates and accelerates directed search of new drugs with desired distribution patterns in the body, and in some cases with higher or broader activity;
- allows justification of the use of pharmaceutical factors in drug production.

WHAT IS THE PLACE OF PHARMACEUTICAL PREPARATIONS TODAY AND IN THE FUTURE IN THE KINGDOM OF MOROCCO?

Seniuk I.V., Benarafa Ibrahim Amin
National University of Pharmacy, Kharkiv, Ukraine

Introduction. Pharmaceutical preparations are of unavoidable importance. From the preparation to magistral preparation, the pharmacist leaves his commercial routine and from his commercial routine and diversifies his field of action for the duration of a prescription. The patient, for his part the patient benefits from his own medicine in terms of quantity, dose and composition. They also allow the doctor to personalise the treatment and thus adapt it to the needs of each patient.

The aim of the study. The objective of our investigation is to evaluate the importance given by pharmacists, doctors and patients to these preparations and to observe their evolution in the field. In this practical part we will estimate the value given to these preparations by both the medical profession and the both by the medical profession and by the population.

Methods of research. This is a survey by questionnaires carried out among pharmacists, doctors and the population, doctors and the general public. At the beginning of the survey, in order to avoid non-responses, the questionnaire was handed over to the pharmacists. It turned out that this task was complicated due to their unavailability. To get around this difficulty we finally opted to publish the questionnaire on social networks and the result was much better. The latter method was also chosen for the other two questionnaires. At the beginning we opted for a survey on the region of Rabat-Salé, but when we published the questionnaire on the social we published the questionnaire on social networks our investigation naturally extended to other naturally extended to other regions of Morocco.

Main results. We note that 40% of pharmacists believe that pharmaceutical preparations are useful, 39% think they are secondary, 12% think they are necessary, 5% say they are useless 5% say they are useless and only 4% consider them indispensable. Results are represented as follows: out of 93 pharmacists who answered the question, 91.4% stated that they comply with the Good compounding practices. According to the bar chart above, only 30% of the population has ever been prescribed prescribed a pharmaceutical preparation at least once in their life. 54% of the population has purchased a pharmaceutical preparation at least once in their life. According to the diagram above, 59% of the surveyed population believes that it is not easy to find pharmaceutical preparations at home. 57% of the population does not have a clear opinion on the nature of the medicine. It should be noted that the majority of cases (53%) consider pharmaceutical preparations to be useful, while the pharmaceutical preparations, while the percentages of the population who consider them to be necessary and secondary are equal (20%). Finally, a small minority (5%) think they are that they are indispensable. A very large proportion of the population questioned (81%) think that both types of medicines (pharmaceutical preparations and industrial specialities) have a place in a pharmacy. Nearly half of the doctors questioned (47.2%) consider useful, while only a minority (5.6%) consider them to be unnecessary. The rest of the doctors surveyed think that they are indispensable (16.7%), necessary (19.4%) or secondary (11.1%). Of the 89% of pharmacists who make preparations, 63% answered that the frequency did not exceed 1% of dispensations, most of them added that they make a maximum of one most of them added that they make at most one preparation every 3 months. This is a first proof of the decline of these preparations. 28.3% of the pharmacists answered that they sometimes prepare drugs (about 3% of the dispensations) and only 8.3% or 9 out of 100 pharmacies often make these preparations (about 15% of the dispensations). 54 out of 72 pharmacists gave us some explanation for this change, and they all agreed that compounding has decreased in frequency. Of the 54 pharmacists who responded, 31 stated that compounding has decreased because of the industrialization of many medicines that were only available in compounded form.

Conclusions. According to the results, patients prefer the preparations to specialty drugs and their doctors feel that they are satisfied with their treatment. The different parties involved in this survey agree that pharmaceutical preparations are losing ground due to the explosion of the drug market in market in recent years. More and more mixtures of active ingredients in a single specialty are being produced industrially in different forms and

dosages. We can therefore clearly say that the misfortune of pharmaceutical preparations has made the pharmaceutical companies happy and that we are pharmaceutical laboratories and that we are heading towards an almost total industrialization of medicines.

BIOTECHNOLOGY OF PROBIOTIC MICROORGANISMS' MICROENCAPSULATION

Starovoitova S.[1], Spivak M.[2]

[1] Department of Biotechnology and Microbiology, National University of Food Technologies, Kyiv, Ukraine

[2] Head of D.K. Zabolotny Institute of Microbiology and Virology of the NASU, Kyiv, Ukraine

Introduction. The microbiome plays an important role in various physiological processes, including digestion, metabolism, immune responses, biosynthesis of many compounds, elimination of toxins, regulation of gut-brain axis function, and even disease pathogenesis. Most of these microbial communities in the gut are influenced by the mode of birth, feeding of the child, genetic background, and lifestyle, including diet, exercises, stress, medications, and the general health of the host. Intestinal microbial populations can vary significantly from person to person, including healthy individuals. Unfavorable changes in the microbial composition, and hence in its functions, are a characteristic of dysbiosis. In COVID-19, the gut microbiome has been shown to be disrupted after SARS-CoV-2 infection. Existence of a gut-lung axis in which the gut microbiota is metabolically capable of influencing lung function is evidenced.

Discussion. Modern approaches, such as the introduction of pro-, pre-, para-, synbiotics and their other derivatives, along with transplantation of fecal microbiota, can restore the disturbed microbiota of the gastrointestinal tract (GIT). There is currently growing interest in functional innovative food products as ideal carriers for probiotic microorganisms. However, many commercial probiotic products are ineffective because the beneficial bacteria they contain do not survive food processing, storage, and passage through the upper gastrointestinal tract. Therefore, modern effective strategies are needed to improve the stability of probiotic microorganisms, both in food products or medicines and during their passage through the human gastrointestinal tract. One of such strategies is microencapsulation as an effective means of protecting probiotics under aggressive conditions. Microcapsules allow programmed release under certain conditions. An effective microencapsulation system maintains the stability of probiotic microorganisms during storage, protects them from aggressive conditions in the upper GI tract, releases them in the large intestine, and then promotes their colonization of mucous surfaces. To achieve better protection and controlled release of probiotics, alginate microgels are widely used.

There are several types of microgels for the of probiotic microorganisms' delivery: