

diseases, have got high value in the pharmaceutical field, due to their effectiveness and the lack of alternative treatments for the disease. The only dosage form of insulin preparations for the treatment of diabetes 1st and 2nd degree – is a liquid dosage form for injection. This dosage form, due to the specific of the getting into the body, is painful for patients. Considering that fact, for a long time the scientists are searching for the new way to development of an alternative method of delivery the active substance.

An alternative way to deliver insulin to the patient was proposed by scientists from Harvard and California universities. The researchers have developed insulin capsules in the form of ionic liquid, which reduce blood glucose level for a long period.

**Aim.** The aim of this work is to reveal and study scientific achievements in the researching of the new ways insulin delivering to patients, and also the specifics of these methods.

**Materials and methods.** During the developing a new form of drug for oral using, there is a main problem-the barrier properties of the gastrointestinal tract. The hydrochloric acid in the stomach denatures protein molecules, and enzymes in the intestine break down proteins to amino acids; while the villi of the intestine covered with a layer of mucus, complicating the absorption of the active substance. However, the solution to this problem was found and is as follows. To overcome the acidic environment of the stomach, insulin protein was placed in a capsule with an acid-resistant coating. The coating of the capsule dissolves when the capsule enters the alkaline environment of the intestine, after the ionic liquid is released along with the insulin protein.

The ionic liquid protects the insulin protein from the action of enzymes, in addition, the choline – geranium acid complex, which is part of the ionic liquid, is able to liquefy the intestinal mucus, which in turn facilitates the absorption of protein by the intestinal villi. After passing through the layer of intestinal villi, the protein enters into the bloodstream, where it is further distributed all over the body.

**Results and discussion.** As a result of the development a new drug form was found that the insulin protein, with prolonged presence in the ionic liquid, is quite stable. The test was carried out for four months at a temperature of 4 °C, and all this time the structure of insulin remained unchanged. The biological activity of the drug was tested on male rats: they have been injected with protein in the ionic liquid with different shelf life, and then checked the level of glucose in the blood – the level of glucose decreased equally.

In addition, oral using of the drug was carried out by the test subject. Two hours after taking the capsules, the glucose level in the subjects decreased by 38%, and after 10 hours – by 45 %.

**Conclusion.** This drug is a breakthrough in the development of antidiabetic agents. First of all, this is confirmed by the claimed less expensive method of production of the drug. In turn, the drug is quite stable and can be stored at room temperature for two months, which significantly exceeds the shelf life of injection forms. Also, it is oral delivery that simulates the physiological pathway of insulin into the bloodstream, since the injection of subcutaneously contributes to the ingestion of protein into the blood unevenly and at different rates, depending on the injection site.

## **STUDY ON ANTI-FUNGAL DRUG ACTIVITY AGAINST CLINICALLY ISOLATED STRAINS OF ORAL *CANDIDA* SPECIES**

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**Introduction.** Following the ever increasing application of antibiotics, immunosuppressive agents, and invasive medical devices, as well as increasing numbers of immunocompromised patients, fungal infections have dramatically increased.

Among fungal infections, the *Candida* species is one of the dominant fungal pathogens, associated with high rates of morbidity and mortality.

Most of antifungals have limited potential as systemic agents due to issues of toxicity, adverse effects or restricted bioavailability. Therefore, there is an increasing need to study on anti-fungal drug activity against clinically isolated strains of oral *Candida* species.

**Aim.** The present study was undertaken to evaluate the anti-fungal activity of amphotericin B, fungizone, fluconazole, miconazole, itraconazole, and against clinically isolated *Candida* strains from oral candidiasis patients.

**Materials and methods.** The study includes 4 strains of *Candida* isolated from patients. The *Candida* species were identified by microbiological methods and biochemical tests. The minimum inhibitory concentration (MIC) of each drug against each *Candida* species was determined.

**Results and discussion.** Of the 10 participants (5 males and 5 females). The *Candida* species isolated were *Candida albicans* (81%), *Candida glabrata* (9% strains), *Candida tropicalis* (7%) and *Candida krusei* (3%). Amphotericin B and fungizone had low MIC values against all species of *Candida* and a low incidence of resistance development. In some species of *Candida*, fluconazole and itraconazole showed high MICs, but miconazole had a low MIC value. itraconazole, miconazole, and itraconazole prescribed to OC patients were effective against OC with respect to alleviation of OC symptoms.

**Conclusions.** MIC values of anti-fungal drugs against *Candida* strains isolated from OC patients were obtained and the 3 anti-fungal drugs given to OC patients were found to be effective against OC in spite of differences in their MIC values and in the number of resistant strains (or strains with a high MIC value).

## **FORMING THE QUALITY OF THE HONEYWINE THROUGH REPLACEMENT THE PART OF HONEY IN THE RECIPE WITH SUGAR**

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**Introduction.** To maintain the normal life of the human body, it is physical and mental balance, it is necessary to receive food all the necessary nutrients. Drinks have an important role in solving this problem. Non-alcoholic and low-alcohol drinks are popular among the national consumer, in this regard; the use of useful natural raw materials of high quality plays an important role in solving the problem of the development of enriched food. Honeywine is an example of functional low-alcohol beverages obtained by fermentation of hydrocarbons. As a result of the vital activity of microorganisms in the fermentation process, the drink is enriched with amino acids, vitamins, organic acids, acquires general strengthening and therapeutic and preventive properties. Since honeywine is a product of natural fermentation, its characteristic feature is light saturation with carbon dioxide. Drinks obtained using honey, have good organoleptic properties, perfectly quench your thirst, normalize metabolism in the body. Due to its useful properties, honey is widely used in the production of non-alcoholic and alcoholic beverages with preventive properties.

**Aim.** Formation of the quality of honeywine when replacing part of the honey with sugar for further production in production.

**Materials and methods.** The study used general, general scientific research methods. Organoleptic parameters were determined in accordance with the mandatory requirements of normative documents. The volume concentration of alcohol in honeywine was determined by hydrometric method using a hydrometer. The mass concentration of sugars was determined by direct titration.

**Results and discussion.** To identify the impact of the use of sugar in the formulation on organoleptic and physico-chemical indicators of honey quality, the goal was set to determine the quality of beverages prepared from different formulations: Sample 1- honeywine, prepared according to the recipe: 1 liter of water-150 g polyphlore field's honey, 0.5 g yeast, 1.5 g of citric acid;

Sample 2 – honeywine, prepared with the same recipe by replacing honey with sugar in the ratio 2:1 (100 g honey + 50 g of sugar). The analysis of the data presented in figure 1 showed that the replacement of the honey with sugar in the formulation of honeywine did not have a negative impact on