

**EXPERIMENTAL STUDY OF CAPSULES BASED ON EXTRACT IRVINGIA GABONENSIS SEEDS AS A MEDICAMENT FOR TREATMENT OF OBESITY**

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**Introduction.** Obesity is one of the global problems in modern medicine today. According to the World Health Organization, more than 400 million people in the world suffer from obesity, in addition, 1.6 billion people are overweight. The World Health Organization, together with British scientists from the UK Health Forum, conducted a study, according to the results of which the problem of obesity will become more urgent every year. Thus, in 2030, 89% of Irish men and 85% of women will be obese or overweight.

Pharmacotherapy for obesity primarily involves lifestyle modification (diet, regular physical activity, at least 150 minutes per week) and medication. Today, only 3 groups of drugs are used to treat obesity: centrally acting drugs that reduce food intake, drugs that act peripherally and reduce food absorption and drugs that increase energy expenditure.

A limited range of these drugs is presented on the Ukrainian market, which confirms the relevance of the study and creation of new drugs for the treatment of obesity.

**Aim.** Recently, African mango capsules have been a popular remedy. The aim of our experimental study was to study a dietary supplement based on African mango for the treatment of obesity in rats.

**Materials and methods.** The experiment was carried out in the vivarium of the Central Research Laboratory of the National University of Pharmacy. The preclinical study was carried out in compliance with the requirements of the "European Convention for the Protection of Vertebrate Animals Used in Experiments and Other Scientific Purposes" and the Law of Ukraine "On the Protection of Animals from Cruelty".

First of all, the animals were randomly divided into 4 groups, 5 animals in each group: group 1 - control pathology, the animals of which were injected with distilled water; Group 2 - experiment, animals of which with simulated obesity were injected with extract from seeds of *Irvigia gabonensis*; Group 3 - experiment, animals were injected with an extract from the seeds of *Irvigia gabonensis*, after simulated obesity; group 4 - reference - animals that received the drug Xenical (orlistat); group 5 - intact.

The obesity model was reproduced in rats for 10 weeks by feeding animals that were on a cafeteria diet, in which the diet included: animal pork fat (lard), high-carbohydrate cereals, pasta, sweets, water was replaced with a 30 % solution fructose. After 10 weeks, treatment was started in all groups of animals.

Throughout the study, anthropometric indicators were assessed: dynamics of body weight, waist circumference, length of animals. Body mass index and weight gain were calculated during the experiment.

**Results and discussion.** According to the results, African mango capsules are moderately active in the group of animals treated during the cafeteria diet, and pronounced activity in animals that were treated after a reproducible obesity model in rats and were fed a balanced diet and received African mango.

**Conclusions.** Therefore, we can conclude that capsules based on African mango are an effective tool in the fight against obesity with an integrated approach to therapy: a low-calorie diet and taking the investigational drug. Based on the results obtained, it can be assumed that the African mango-based dietary supplement reduces the need for food even when consuming a high-calorie diet.

## MODERN PHARMACOTHERAPY OF DIABETES MELLITUS TYPE 2

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**Introduction.** Diabetes mellitus type 2 (DM) is a complex chronic disease that occurs when the body cannot produce enough insulin or use it effectively. People with DM type 2 need treatment for control their level of blood glucose and prevent complications in the long run. DM type 2 is a progressive disease, in connection with which after some time there is a need to modify pharmacotherapy. Sodium-glucose co-transporter 2 inhibitors (SGLT2) are oral antihyperglycemic drugs whose main mechanism of action is to block the reabsorption of up to 50% of glucose in the proximal tubules, leading to glucosuria and decreased blood glucose levels.

**Aim.** Study the modern guidelines about the place of SGLT2 in complex pharmacotherapy of DM type 2.

**Materials and methods.** We analyzed the updated standards of the American Diabetes Association, issued in 2020, which provide recommendations for the use of SGLT2 for the pharmacotherapy of DM type 2.

**Results and discussion.** Lifestyle modification is the first step in the overall treatment strategy for patients with DM type 2. Patients should conduct behavioral psychotherapy sessions, adjust their diet and physical activity to lose weight and achieve a deficit in the energy value of food.

Medication of the SGLT2 (dapagliflozin, empagliflozin, canagliflozin) are recommended for use as first-line drugs in patients with DM type 2 with cardiovascular disease (CVD) or with a high risk of cardiovascular complications, diabetic kidney disease or heart failure. Such recommendations are due to the fact that SGLT2 have proven their effectiveness in CVD in multicenter studies, regardless of the level of HbA1c in the blood, taking into account individual factors. Several studies have demonstrated that empagliflozin was more effective in reducing HbA1c and improving other cardiometabolic parameters than dapagliflozin. Other researchers have demonstrated that canagliflozin provided greater 24-h urinary glucose excretion, a lower renal threshold for glucose excretion and smaller postprandial plasma glucose excursions than dapagliflozin.

**Conclusions.** Thus, SGLT2 is the group of choice for pharmacotherapy in patients suffering from DM type 2 in combination with CVD and / or diabetic kidney disease.