



## TECHNOLOGICAL DESIGN AND PRODUCTION FEATURES OF THE DOSAGE FORM IN THE FORM OF CAPSULES OF ANTI-DIABETIC PHARMACOLOGICAL AGENTS

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**Background:** Diabetes mellitus is one of the most common chronic, non-communicable diseases of our time, affecting millions of people worldwide. According to the World Health Organization, the number of patients with this disease increases annually, making the development of effective and safe medications highly socially and medically important. The modern pharmaceutical industry places particular emphasis on creating convenient, stable, and bioavailable dosage forms of antidiabetic drugs.

**Study Objective:** To develop and validate a technology for producing capsules containing an antidiabetic pharmacological agent that ensures the stability of the active substance, high bioavailability, and ease of use for patients.

**Materials and Methods:** Subject of study: an antidiabetic drug (e.g., metformin or glimepiride) as a model substance. Excipients: fillers (microcrystalline cellulose, lactose), lubricants and binders (talc, starch), capsule shells (gelatin and HPMC capsules).

**Results:** An optimal capsule composition was selected using excipients that improve powder flowability and drug stability. An encapsulation technology was developed that ensures uniform dosing and compliance with pharmacopoeial requirements. The stability of the resulting dosage form under standard storage conditions was demonstrated. The resulting capsules are characterized by controlled release of the active ingredient, which contributes to increased therapeutic efficacy.

**Conclusions:** 1. A technology for producing capsules containing an antidiabetic drug was developed and experimentally validated. 2. The results demonstrate high stability, biopharmaceutical acceptability, and ease of use of this dosage form. 3. The use of capsules increases the effectiveness of antidiabetic therapy and improves patient compliance.