THE LAB METHOD OF SYNTHESIS OF NEW ACTIVE PHARMACEUTICAL INGREDIENT, 6-NITRO-N-(2'-CARBOXY-5'-BROMOPHENYL)ANTHRANILIC ACID AND DEVELOPMENT OF ITS QUALITY CONTROL METHODS

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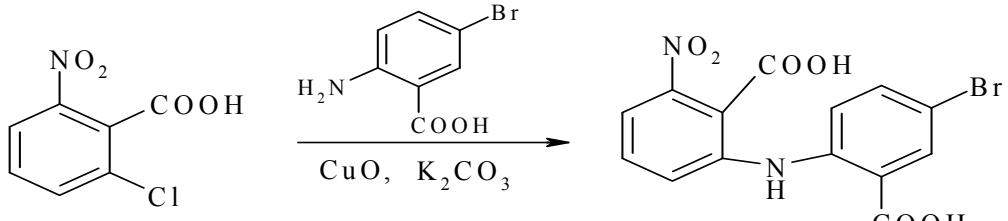
The synthesis, research and development of new active pharmaceutical drugs are the major challenges in pharmacy and medicine.

Design of the new derivatives of N-phenylanthranilic acids and development of its quality control methods have been the aim of this research.

The new active pharmaceutical ingredient API (II) has been synthesized by the reaction of 6-nitro-2-chlorbenzene carboxylic acid (I) with 5-bromanthranilic acid in the presence of the CuO and K_2CO_3 as catalysts and at temperature 180-200^oC for two hours.



I II

This method has remarkable advantages such as simple experimental procedure, mild reaction conditions, low reaction time, and high product yields (92% of the theoretical), avoiding hazardous organic solvents. The proposed method lets to obtain the API II by the efficient, step-economical, and scalable way.

The structures of the synthesized compound 6-nitro-N-(2'-carboxy-5'-bromophenyl)anthranilic acid has been confirmed by FT-IR, UV, ^1H NMR-spectroscopy and elemental analysis.

Fundamental to all aspects of drug development and manufacturing are the analytical methods. The methods of identification based upon tests for functional groups such as carboxylic-, nitro-, covalent bonded bromine were developed. The method of acid-base titration (alkalimetry) for assay of the compound was proposed.

The synthesized compound API II was screened for wide range of biological activity and it has shown anti-inflammatory, analgesic, diuretic and antifungal activity. In the same time the substance exhibits low toxicity (LD_{50} in mice > 6500 mg/kg).

In summary, the conducted researches indicate the prospects of finding new biologically active compounds based on derivatives of anthranilic acid.