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SPECTROPHOTOMETRIC DETERMINATION OF MELOXICAM IN PHARMACEUTICAL FORMULATIONS

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Inflammation is a complex local vascular-mesenchymal reaction to tissue damage caused by various agents. This reaction is aimed at destroying the agent that caused the damage and repairing the damaged tissue [1].

Today, due to their effectiveness and safety, non-steroidal anti-inflammatory drugs (NSAIDs) of selective action are very popular in the treatment of inflammation, which include the drug of the group of oxicams – meloxicam (Fig.1). Meloxicam blocks cyclooxygenase, the enzyme responsible for converting arachidonic acid into prostaglandin H_2 – the first step in the synthesis of prostaglandins, which are mediators of inflammation [2-4].
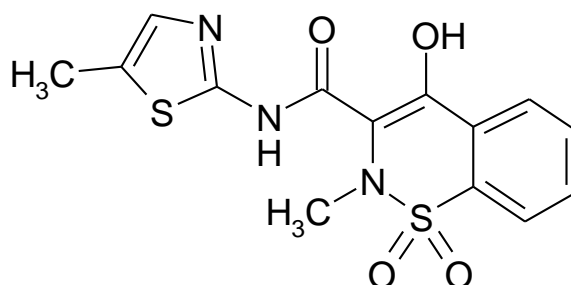

Figure 1. The chemical structure of meloxicam

The aim of this work was to develop a spectrophotometric method for the quantitative determination of meloxicam based on the reaction with bromothymol blue.

During the development of the method, factors that may affect the rate and completeness of the reaction, such as nature of the solvent, concentration of the reagent, reaction time, and stability of the studied solutions over time were studied.

As a result of the studies, the absorption spectrum of the product of this reaction was measured and the detection limit of 1.88 μg/ml was determined. Beer's law is observed in concentrations of 0.80-2.40 mg / 100 ml.

Based on the obtained data, a spectrophotometric method for the quantitative determination of meloxicam was developed and tested on such dosage forms as Meloxicam 15 mg tablets (PJSC Lekhim-Kharkiv, Ukraine, series 93029004), Revmoxicam 7.5 mg tablets (JSC Farmak », Ukraine, series 80819).

Validation of the developed methodology was carried out in accordance with the requirements of the State Pharmacopoeia of Ukraine [5]. The primary validation

characteristics are established: specificity, linearity, precision, accuracy, robustness, range of application [6].

The developed method is simple, accurate, reproducible in the laboratory, so it can be recommended for the routine estimation of meloxicam in bulk drug and its pharmaceutical formulations.

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