

DETERMINATION OF THE PURITY OF DIOXOINDOLINONE BY THIN LAYER CHROMATOGRAPHY

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Introduction

One of the most common mental diseases is depression, which is the leading cause of diseases and disability worldwide, according to the WHO.

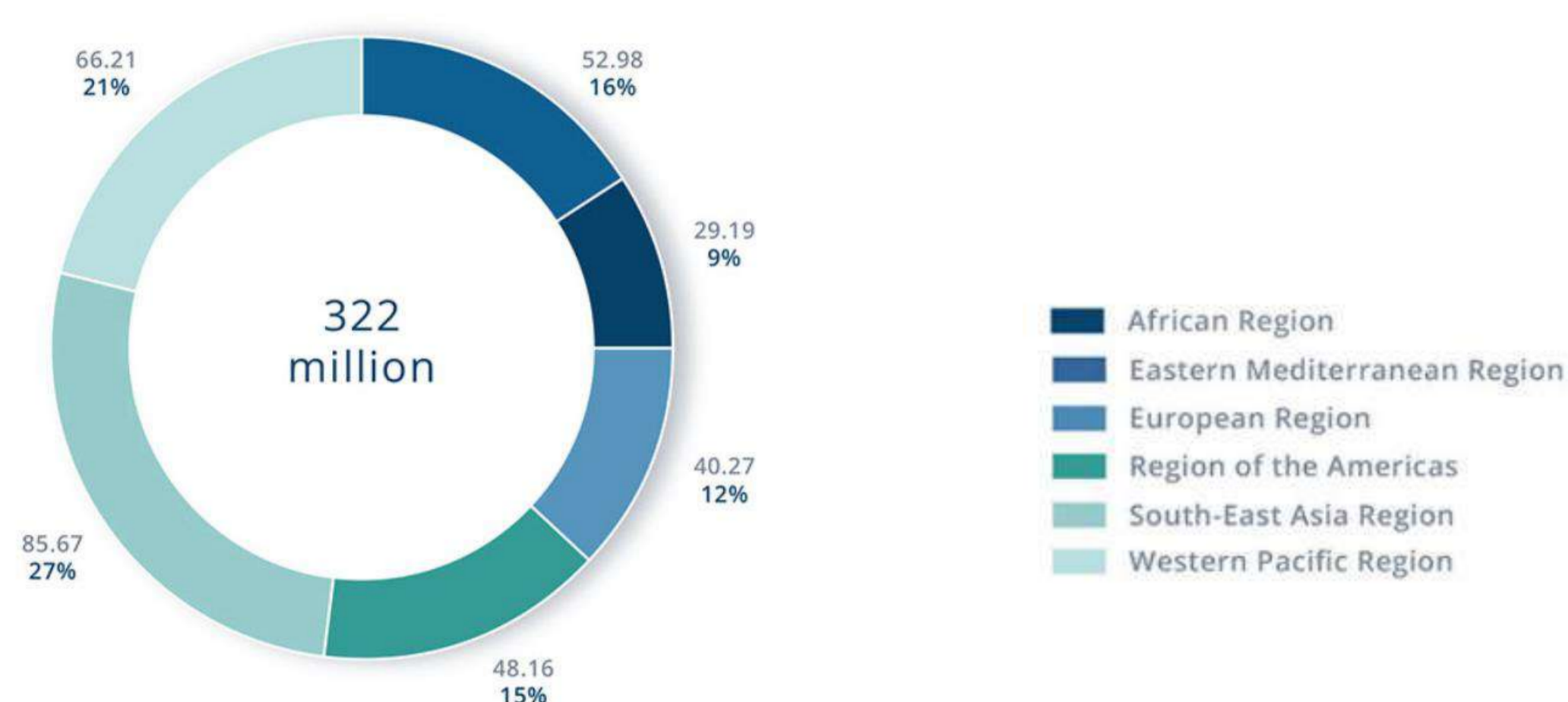


Figure 1. Cases of depressive disorder (millions), by WHO

Thus, the researches on new compounds used in treating depression is very current, as well as the development of methods for their analysis.

Dioxoindolinone – (1'-(2-oxo-propil)-spiro[[1,3]dioxolane-2',3'-indolin]-2'-one) – is a new native compound of the isatin group, synthesized in the Organic Synthesis and Biopharmaceutical Laboratory of the Institute of Chemistry.

Purpose

To develop thin layer chromatographic method of analysis (TLC) in order to determine the specific impurities of Dioxoindolinone (fig.2).

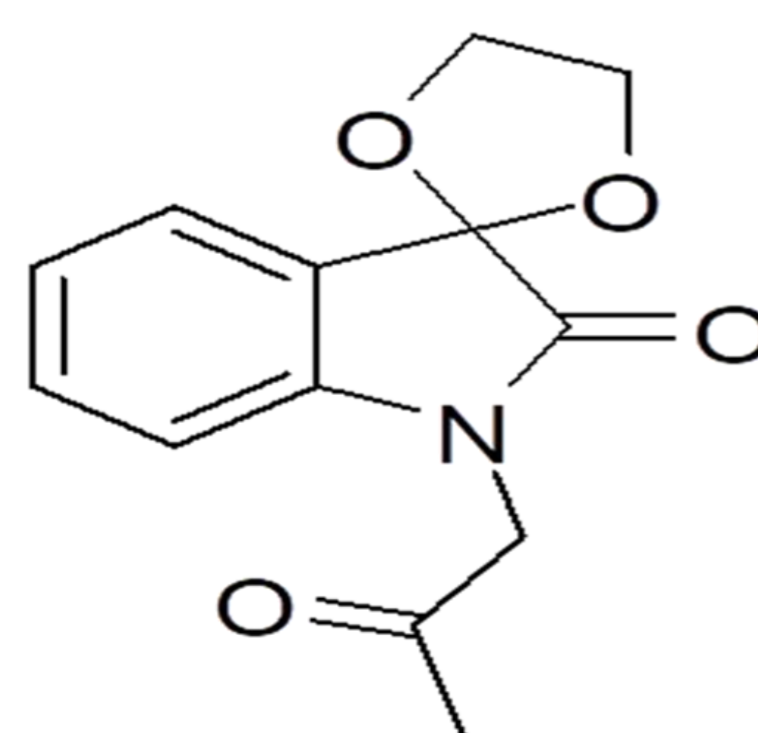


Figure 2. Dioxoindolinone

Keywords: Dioxoindolinone, TLC, specific impurities.

Material and methods

Dioxoindolinone and specific impurities possible (isatin – the starting substance, ketal izatin – intermediate and acetonide – decomposition product) served as object of study (fig. 3).

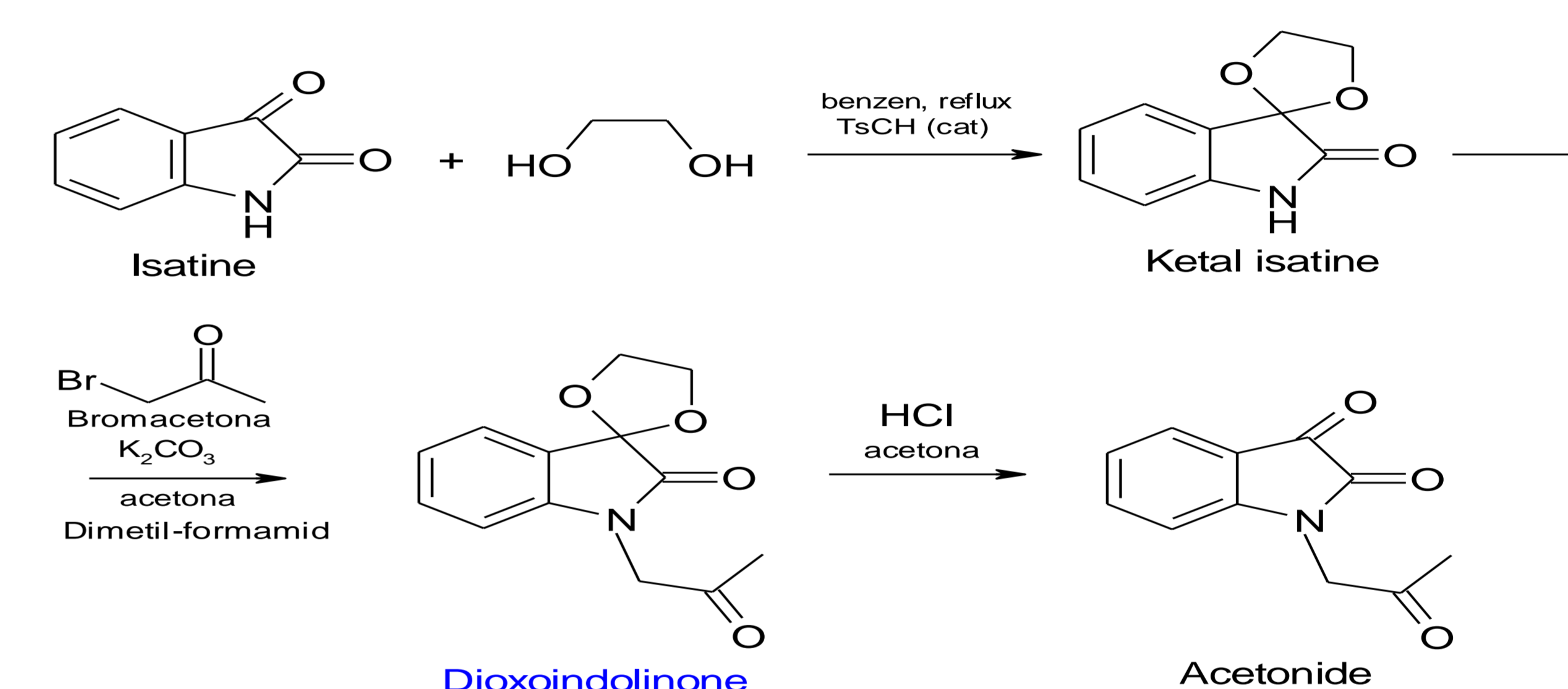


Figure 3. Synthesis scheme of Dioxoindolinone

Results

TLC conditions, development systems and development reagents were selected. The solvent system that achieved an optimal separation of specific impurities and Dioxoindolinone was the mixture of benzene: methanol (90:10). Chromatographic plate development was performed with iodine vapor. R_f values were obtained (fig. 4):

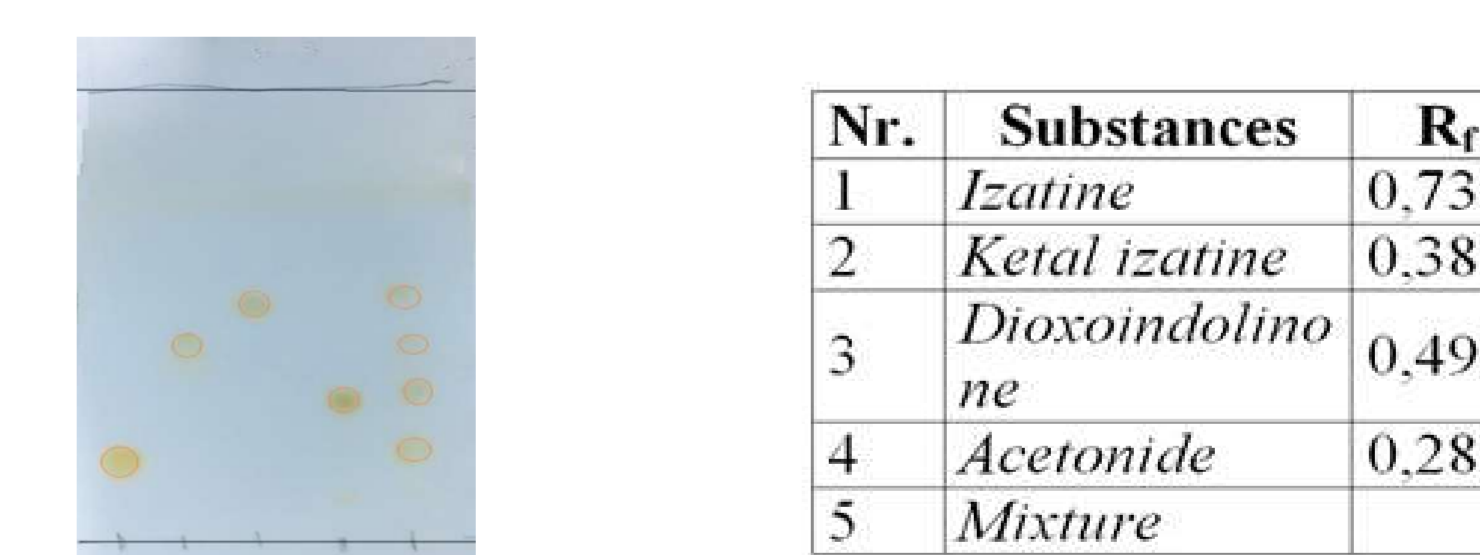


Figure 4. Chromatogram and R_f values

Conclusion

The developed TLC method allowed the determination of specific impurities in Dioxoindolinone and will serve as a support for the preparation of the AND for this substance.