

# 1. Abstract

Chemistry of 5-substituted tetrazoles has been the subject of intense investigation during last ten years. 5-substituted tetrazoles have found widespread use in many branches of industry, especially in pharmacy.

In many cases, 5-substituted tetrazole present an optimal isosteric analogue of carboxylic group due to similar physico-chemical properties. The advantage of 5-substituted tetrazoles is their low metabolic degradability. One of the most important uses of 5-substituted tetrazoles are antihypertensives, antagonists of angiotensin II receptors, so called „sartans“.

Advance in synthesis of 5-substituted tetrazoles has occurred since the publication of W. G. Finnegan in 1958. In the following years numerous new methods have been published, originating from this work.

The latest trend in chemistry of tetrazoles is microwave activation instead of conventional heating.

In our work we focused on efficiency of microwave activation compared to conventional heating in several methods of the preparation of 5-substituted tetrazoles. We selected a preparation of 5-phenyl-1*H*-tetrazole from an easily available benzonitrile as the model reaction.

Surprisingly, microwave irradiation did not result in a significant decrease in the reaction time or a higher yield.

Furthermore, we aimed at preparation of biologically active substances derived from 5-(tetrazol-5-ylmethylsulphonyl)tetrazole. All of the evaluated substances showed a significant antituberculosic activity.