

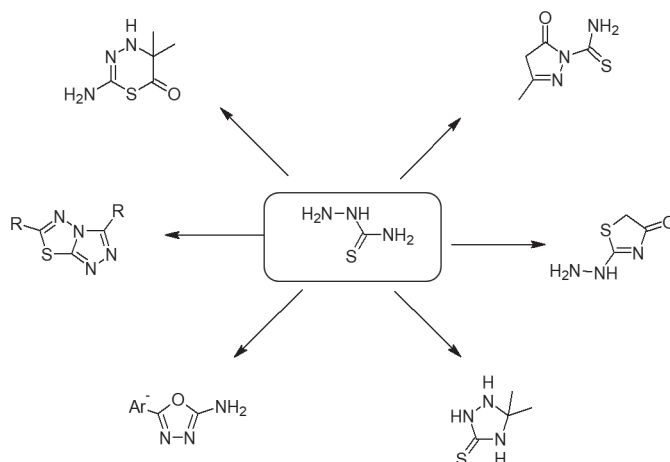
# CHAPTER 10

## THE REVIEW OF BIOLOGICAL ACTIVITY POTENTIAL OF THIOSEMICARBAZIDE (HYDRAZINECARBOTHIOAMIDE) DERIVATIVES

Faika Basoglu<sup>1</sup>  
Nuray Ulusoy Guzeldemirci<sup>2</sup>

### 1. INTRODUCTION

Generally, small molecules that contain nitrogen and sulfur groups are very handy for the synthesis of many novel biologically active compounds [1,2]. Thiosemicarbazide derivatives, for instance, tend to be relatively easy to synthesize and can serve as the precursor, intermediate molecule, or subunit in the synthesis of heterocyclic compounds (Scheme 1) [3,4].

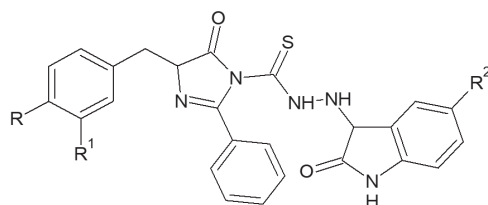


**Scheme 1.** Some heterocyclic compounds are obtained from thiosemicarbazide [3]

<sup>1</sup> Asst. Prof. Dr., European University of Lefke, Faculty of Pharmacy, Department of Pharmaceutical Chemistry, fabasoglu@eul.edu.tr

<sup>2</sup> Prof. Dr., Istanbul University, Faculty of Pharmacy, Department of Pharmaceutical Chemistry nulusoy@istanbul.edu.tr

A novel series of 4-(4-Methylbenzylidene)-5-oxo-2-phenyl-imidazolidine-1-carbamodithioic acid (2-oxo-1,2-dihydro-indol-3-ylidene)hydrazide were synthesized according to the literature [83] mentioned procedures by conventional methods and evaluated for their possible anthelmintic activities [83].



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R= -H, -OCH<sub>3</sub>, -Cl, -NO<sub>2</sub>, -CH<sub>3</sub> R<sup>1</sup>= -H, -OCH<sub>3</sub> R<sup>2</sup>= -H, -Cl

#### 4. CONCLUSION

In this review, there has been considerable interest in the development of novel thiosemicarbazide derivatives with biological activities, such as anticancer, antiviral, antibacterial and antimicrobial. This review expresses the variety and diversity in application areas of significant importance shown by thiosemicarbazides and their derivatives. Consequently, some thiosemicarbazide derivatives show good antioxidant, antifungal, and antibacterial and also these molecules and the other derivatives have got low or intermediate biological activity, such as antiviral, anti-cancer, analgesic, anticonvulsant.

Many researchers are still going on to improve and design new thiosemicarbazide derivatives and some studies are supported by a computational study using a molecular modeling program.

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