P33. Synthesis, Structure and Antioxidant Activity of some carbonyl compounds of *N*(4)-(2,4-dimethylphenyl)thiosemicarbazones

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The aim of this work was to synthesize of *N*(4)-(2,4-dimethylphenyl)thiosemicarbazones, determine of their composition, structure and antioxidant activity.

Firstly, the thiocarbamides were obtained by the reaction of 2,4-dimethylaniline with TDMT. Then thiosemicarbazides were obtained by two step process. Finally, thiosemicarbazones were synthesized by the condensation of corresponding thiosemicarbazide with carbonyl compounds: *pyridine-2-carboxaldehyde,* 1-(pyridin-2-yl)ethanone, 2-hydroxybenzaldehyde and 2-hydroxy-3-methoxybenzaldehyde.

The purity of all the organic substances was proved by NMR (^{1}H and ^{13}C) spectroscopy. The single crystals of some substances were obtained and their structures were determined by single-crystal X-ray diffraction analysis. These molecules represent almost planar structures, and the thiosemicarbazone is found to be in the thione form in solid state.

The substances were screened for their antioxidant activity by free radical scavenging ability using the stable radical 1,1-diphenyl-2-picrylhydrazyl (DPPH) and the long-life radical cation 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS), and compared with that of 6-hydroxy-2,5,7,8-tetramethychroman-2-carboxylic acid (Trolox) standards. All of synthesized compounds exhibited a very good scavenging activity against DPPH free radical. On the other hand, they exhibited the higher antioxidant activity against radical cation ABTS. This demonstrates, that the introduction of big radicals at the *N*(1) and *N*(4), leads to a higher antioxidant activity.

Identified properties of thiosemicarbazones are of interest in terms of expanding the arsenal of the reserve of antioxidants to prevent or reduce the impact of oxidative stress on cell.

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