

Information on Doctoral thesis of Fellows Le The Hoai

1. Full name: Le The Hoai
2. Sex: Male
3. Day of birth: 05/09/1981
4. Place of birth: Thanh Hoa
5. Admission decision number: 1691/SĐH, dated 07/05/2009 by President of Vietnam National University, Hanoi
6. Changes in academic process: none
7. Official thesis title: Study on synthesis and properties of glycopyranosyl thiosemicarbazones containing aromatic ring
8. Major: Organic chemistry
9. Code: 62 44 27 01
10. Supervisor: Assoc. Prof. Ph.Dr. Nguyen Dinh Thanh
11. Summary of the new finding of the thesis:

+ Two *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-glycopyranosyl)thiosemicarbazides have been prepared from corresponding 2,3,4,6-tetra-*O*-acetyl- α -D-glucopyranosyl and 2,3,4,6-tetra-*O*-acetyl- α -D-galactopyranosyl isothioxyanates.

+ From *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-glycopyranosyl) thiosemicarbazide have been synthesized 17 substituted acetophenone *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-glycopyranosyl)-thiosemicarbazones and 10 substituted benzaldehyde *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-glycopyranosyl)thiosemicarbazones.

+ From *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-galactopyranosyl)thiosemicarbazide have been synthesized 7 substituted acetophenone *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-galactopyranosyl)-thiosemicarbazones and 21 substituted benzaldehyde *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-galactopyranosyl)thiosemicarbazones.

+ Some *N*-(2,3,4,6-tetra-*O*-acetyl- β -D-glycopyranosyl)thiosemicarbazones of substituted acetophenones and benzaldehydes have been converted to 20 compounds of 2-iminothiazolidin-4-ones, 5 compounds of 4,5-dihydrothiazoles and 6 compounds of 2,3-dihydrothiazoles.

+ Structures of all synthesized products were confirmed by IR, NMR (such as $^1\text{H-NMR}$, $^{13}\text{C-NMR}$, COSY, HMBC, HSQC) and mass spectral data. The purity of these products were controlled by thin layer chromatography. The relationships between δ and Hammett's σ in $^1\text{H-NMR}$, $^{13}\text{C-NMR}$ spectra of these thiosemicarbazones were found.

+ The most of thiosemicarbazones have significant biological activities (such as free-radical scavenged activity of DPPH and antifungal activities for *Candida albicans*, and bacterial for *Klebsiella pneumonia*, *Staphylococcus epidermidis*).

12. Practical applicability, if any: No

13. Further research directions, if any: No

14. Thesis-related publications:

- Nguyen Dinh Thanh, Le The Hoai, Nguyen Thi Kim Giang, Nguyen Thi Thu Huong (2010), "Synthesis and conversion of acetophenone per-*O*-acetyl- β -D-glucopyranosyl thiosemicarbazones", *Journal of Chemistry* 48(4B), pp. 121-128)
- Nguyen Dinh Thanh, Nguyen Thi Kim Giang, Le The Hoai (2010), "Microwave-assisted synthesis of acetophenone (per-*O*-acetylated- β -D-glucopyranosyl)-thiosemicarbazones", *E-J. Chem.* 7(3), pp. 899–907
- Nguyen Dinh Thanh, Bui Thi Thu Trang, Le The Hoai (2010), "Contribution to synthesis of peracetylated galactopyranosyl thiosemicarbazones of substituted benzaldehydes", *Journal of Science and Technology* 48(2A), pp. 347-354
- Nguyen Dinh Thanh, Le The Hoai (2011), "NMR spectra of tetra-*O*-acetyl- β -D-galactopyranosyl thiosemicarbazones", *Journal of Chemistry* 49(2ABC), tr. 640–645
- Thanh Dinh Nguyen and Hoai The Le (2011), "Some conversions of per-*O*-acetyl- β -D-glycopyranosyl thiosemicarbazones of substituted acetophenones and benzaldehydes", In *Proceedings of the 15th Int. Electron. Conf. Synth. Org. Chem.*, 1-30 November 2011; Sciforum Electronic Conferences Series , A778.
- Nguyen Dinh Thanh, Le The Hoai (2012), "Synthesis, structure and antioxidant activity of (tetra-*O*-acetyl- β -D-galactopyranosyl) thiosemicarbazones of substituted benzaldehydes", *Indian J. Pharm. Sci.* 74(1), pp. 54–62