

INFORMATION ON DOCTORAL THESIS

1. Full name: Le Thanh Son

2. Sex: male

3. Date of birth: 08/10/1981

4. Place of birth: Phu Yen

5. Admission decision number: 5429/SĐH, Dated: 30/ 10 /2008 by President of Vietnam National University, Hanoi.

6. Changes in academic process: None

7. Official thesis title: Study on synthesis, structure and biological activity of some condensed heterocyclic containing O, S, N.

8. Major: Organic chemistry

9. Code: 62 44 27 01

10. Supervisors: Prof. Dr. Trieu Nguyen Dinh

Associate Prof. Dr. Quang Ngo Dai

11. Summary of the new findings of the thesis:

From derivatives of 4-amino-3-mercapto-1,2,4-triazole, we synthesised 64 compounds including: 15 derivatives of 1,2,4-triazolo[3,4-b]-1,3,4-thiadiazepine, 15 derivatives of 7H-1,2,4-triazolo[3,4-b]-1,3,4-thiadiazine, 12 derivatives of 6-(6-X-cumarin-3-yl)-1,2,4-triazolo[3,4-b]-1,3,4-thiadiazine, 12 derivatives of 6-(2-R-quinolin-4-yl)-1,2,4-triazolo-[3,4-b]-1,3,4-thiadiazole and 10 derivatives of quinolino[3,2-f]-1,2,4-triazolo[3,4-b]-1,2,4-thiadiazepine. All of the products were in crystal, the purification was test by thin layer chromatography and melting point measurement method. All of the above compounds have not been found in the references.

The structures of the synthesized compounds were defined through spectroscopy research method by a reliable database in IR, 1D-NMR, 2D-NMR and MS spectroscopy of all of the products.

36 compounds were tested for anti-bacteria and anti-fungi activity. 6 compounds were tested for AChE activity. Following to the results, all of the tested compound were anti – bacteria and anti-fungi well, especially, one of 6 compounds containing triazolothiadiazepine ring had AChE activity with 50.6% of the inhibition of ezim activity.

12. Practical applicability, if any:

Ability to synthesize the application of certain substances have antifungal activity, antibacterial

13. Further research directions, if any:

Study on synthesis of some condensed heterocyclic containing O, S, N (triazolothiazine, triazolotriazole and triazolothiazepine) have biological activity

14. Thesis- related publications:

1. Son Le Thanh, Trieu Nguyen Dinh, Nhan Tran Thi (2009), Synthesis and study on structure of some compound $3-R^1-8-R^2-(1,2,4)\text{-triazolo}[3,4-b](1,3,4)\text{-thiadiazine}$, *Journal of Science and Technology* Vol.48 (2A), pp.90-95.
2. Nguyen Tien Cong, Le Thanh Son, Nguyen Dinh Trieu, Lawrence M. Pratt, Pham Van Tan, Tieu Tuan Kiet, Ross M. Barajas (2010), Synthesis and properties of novel 6-aryl-3-aryloxymethyl)-7H-1,2,4-triazolo[3,4-b]-1,3,4-thiadiazines, *Journal of Chemistry* Vol.48(4B), pp. 213-218.
3. Son Le Thanh, Trieu Nguyen Dinh (2010), Synthesis and properties of novel 2-R-4-(3-aryloximethyl-1,2,4-triazolo[3,4-b]-1,3,4-thiadiazol-6-yl)quinoline, *Journal of Chemistry* Vol.48(4B), pp.155-160.
4. Cong Nguyen Tien, Son Le Thanh, Trieu Nguyen Dinh, Nhung Le Thi Hong, Linh Bui Thi Thuy (2011), Synthesis and transfer 4-amino-5-[(4,6-dimethylpyrimidin-2-ylthio)methyl]-1,2,4-triazole-3-thiole, *Journal of Chemistry* T49(2ABC), pp.65-70.
5. Son Le Thanh, Cong Nguyen Tien, Trieu Nguyen Dinh, Duc Do Huu (2011), Synthesis and study on structure of some compound (1,2,4-triazolo[3,4-b]-1,3,4-thiadiazin-6-yl)coumarine, *Journal of Chemistry* Vol. 49(2ABC), pp.575-580.
6. Son Le Thanh, Cong Nguyen Tien, Trieu Nguyen Dinh, Duc Do Huu (2011), Mass spectrometry of some compound (1,2,4-triazolo[3,4-b]-1,3,4-thiadiazin-6-yl) coumarine, *Journal of Chemistry* Vol.49(6), pp. 780-784
7. Son Le Thanh, Trieu Nguyen Dinh, Quang Ngo Dai (2012), Synthesis and study on structure of some compound quinolino[3,2-f]-1,2,4-triazolo[3,4-b]-1,3,4-thiadiazepine, *Journal of Chemistry* Vol. 50(1), pp. 58-62.