

INFORMATION ON DOCTORAL THESIS

1. Full name: Tran Van Tinh

2. Sex: Male

3. Date of birth: 17-07-1964

4. Place of birth: Hai Phong

5. Admission decision number: No. 671/QĐ-SĐH dated 15/5/2009 of Vietnam national University, Hanoi.

6. Changes in academic process:

Decision No. 2002/QĐ-SDH-TN dated 16/11/2009 of Rector of VNU-University of Science on adjustment the doctoral thesis named "Optimal operating conditions and some substances affected on the human leukocyte enzyme by cytochemistry methods" onto "Synthesis of substrates, optimization of the esterase staining conditions and kits production for leukemia diagnosis serving treatment of blood disease".

7. Official thesis title:

"Synthesis of substrates, optimization of the esterase staining conditions and kits production for leukemia diagnosis serving treatment of blood disease".

8. Major: Organic chemistry

9. Code: 62 44 27 01

10. Supervisors: Assoc. Prof. Dr.Sc. Luu Van Boi

Prof. Ph.Dr. Nguyen Anh Tri

11. Summary of the new results of the thesis:

- Have been developed the new-microwave-assisted methods used for synthesis of 16 N-substituted-3-hydroxynaphthalene-2-carboxamide, including 3 new derivatives;

- Have been improved the reaction procedure between 3-hydroxy-(N-substitution) naphthalene-2-carboxamide with acyl chloride used for synthesis of 38 3-(N-substitution -cabcamoyl)naphthalene-2-yl-carboxylates, including 36 new derivatives.

- Have been investigated the electron, steric effects of the substitutions and the dihedral angle created by the carboxyl group on specificity and sensitivity of the above mentioned substrate in esterase

staining reactions. The results showed that the substances with electron-pushing substituents are more sensitive than electron-withdrawing one, and the substances with substituents at *ortho*-position are more sensitive than those with substituents at *meta*- and *para*-positions.

- Have been synthesized naphthol AS-OL α -chloropropionate used as new substrate with similar specificity, but 1.2 times greater in sensitivity and 80% cheaper in price of naphthol AS-D α -chloroacetate supplied by Sigma company.

- Have been successfully made the kit sets using naphthol AS-OL α -chloropropionate for specific esterase human leukocyte staining; the test results on normal human blood at the National Institute of Hematology and Blood Transfusion and on marrow of leukemia patients who classified cell lines showed that the kit sets are equivalent in specificity, but 1.2 times greater in sensitivity than Sigma naphthol AS-D α -chloroacetate and is recommended to replace the imported products.

12. Practical application of the obtained results:

The synthesized naphthol AS-OL α -chloropropionate can use as new high sensitive substance using in specific esterase cell staining for classifying human leukemia disease.

13. Further research:

Study on synthesis and application of new substrates for production of the uniform staining test kits in classifying blood cell in leukemia disease patients.

14. The publications:

1. Tran Van Tinh, Pham Hoai Thu, Nguyen Anh Tri, Luu Van Boi (2010), "Research the optimal conditions for the esterase staining of human leukocyte with naphthol AS-D chloroacetate by simplex method", *Journal of Medical and pharmaceutical information* (02), pp. 25-29.

2. Tran Van Tinh, Pham Hoai Thu, Nguyen Anh Tri, Luu Van Boi (2010), "The new approach to Naphthol AS-D used in synthesis of Naphthol AS-D chloroacetate for utilizing as human leukocytes specific esterase substrate", *Journal of chemistry Vietnam Academy of Science and Technology* Vol 48 (4A), pp. 736-741.

3. Tran Van Tinh, Pham Hoai Thu, Nguyen Anh Tri, Luu Van Boi (2011), "Synthesis and study of electronic effect on the reaction staining specific esterase of human leukocytes of naphthol AS chloroacetate derivatives", *Journal of chemistry Vietnam Academy of Science and Technology* Vol 49 (4), pp. 479-488.

4. Tran Van Tinh, Phan Thi Trang, Nguyen Anh Tri, Luu Van Boi (2011), "Synthesis and investigation of the steric effect on activity of N-substituted-3-carbamoylnaphthalene-2-yl α -chlorocarbonylate in human leukocyte cell esterase staining reaction", *Journal of chemistry Vietnam Academy of Science and Technology* Vol 49 (6), pp. 725-732.

5. Tran Van Tinh, Pham Hoai Thu, Nguyen Anh Tri, Luu Van Boi (2011), "Synthesis of naphthol AS-D and AS-OL carbocylates and study the effect of acid radicals on sensitivity of the substances in esterase staining human blood leukocytes", *Journal of Science, Vietnam National University, Series of Science and Technology* Vol 28(1), pp.54-63.

6. Tran Van Tinh, Pham Hoai Thu, Nguyen Anh Tri, Luu Van Boi (2011), "The compound α -naphthol AS-OL chloropropionate and the method using α -naphthol AS-OL chloropropionate as substrate to the esterase staining of human leukocyte", *Patent Registered in National office of Intellectual Property of Vietnam No. 1-2011-02139/SC on 17/08/2011 and be accepted No. 21544/QĐ-SHTT on 27/04/2012.*