INFORMATION ON DOCTORAL THESIS

1. Full name: Vo Thi Viet Dung

2. Sex: Famale

3. Date of birth: 25/02/1983

4. Place of birth: Thua Thien Hue, Viet Nam

5. Admission decision number: 5429/QĐ-SĐH dated 30/10/2008 of Vietnam National University

6. Changes in academic process: The decision to adjust the name doctoral thesis and the collective staff of 738/QD-SDH-TN of VNU University of Science, Vietnam National University, Hanoi.

7. Official thesis title: *Research method for determining the fatty acids in some kinds of plant oil and animal fat in Vietnam by chromatographic techniques.*

8. Major: Analytical Chemistry

9. Code: 62 44 29 01

10. Supervisors: 1. Assoc.Prof.Dr. Nguyen Xuan Trung

              2. Assoc.Prof.DrSc. Luu Van Boi

11. Summary of the new findings of the thesis:

Research has examined the machine parameters, modeling and optimization of factors affecting the ability of the system analysis device GC/FID. Optimal conditions of GC/FID for separation and simultaneous determination of 37 fatty acids methyl ester in the mixture with the ability to separate over 95% (R = 1.08) and good repeatability (RSD = 2.12%) is: Column separation: capillary column with strong polarization SP^{TM} –2560 (100 m × 0.25 mm × 0.2 μm), column oven temperature program: start temperature: 140^0C, hold for 5 minutes, up $2,4^0C$/min to 240^0C, hold for 8 minutes; carrying gas: He, speed 20.5 cm/s; pump flow rate divided by 30:1; detector FID at 260^0C, H_2 auxiliary gas: 40 ml/min, not air: 400 ml/min, the make up He: 40 ml/min.

Tested concentration of free fatty acids in oil plants and animals in order to apply appropriate procedures for oil and fat metabolism, plant into methyl esters of fatty acids for analysis by GC/FID: application of the conversion of an alkaline catalyst phase for catfish fat, lard, soybean oil, sesame oil, peanut oil, coconut oil and metabolic processes in two stages, first stage acid catalyst used and the period after use alkaline catalysts for rubber seed oil and Jatropha oil.

Having studied and examined in a single and system modeling using quadratic regression model of factors affecting the efficiency of conversion of methyl ester fatty acid metabolism through a phase and two grease stage, plants, find the optimal conditions and metabolic performance of each process.

Has applied the oil and fat metabolism, plants from non-volatile form volatile form of methyl esters of fatty acids for 8 samples grease plant and animal metabolism studies with high, over 98%, good repeatability, the relative standard deviation less than 0.7%, suitable for analyzing the methyl esters of fatty acids on the system GC/FID.

Methods of analysis were evaluated statistically with sensitivity, repeatability, the true, the good recovery, satisfactory precision and reliability when compared with the results of analysis samples for testing Vilas Test Institute of Hygiene and Food Safety National, meeting the requirements in the chemical analysis.

Having analyzed the fatty acid and oil samples in 8 animals and plants commonly used include: catfish fat, lard, soybean oil, sesame oil, peanut oil, coconut oil, rubber seed oil and oil Jatropha. The data can be used to update the data table component plant seed oils, animal fats, food ingredients, feed ingredients, raw material selection biodiesel modulation of Vietnam, ...

12. Paratical applicability, if any:

It can be applied the research conditions for the simultaneous separated and defined of fatty acids in the different samples of plant oil and animal fat, the preparation of biodiesel fuel from plant oil and animal fat in Vietnam.

13. Further research directions, if any:

Suggest using results of analytical procedures building and towards approval of standard analytical methods to determine composition of fatty acids in plant seed oils and animal fats.

Continue research evaluation component fatty acids in other plant oils and animal fats to have the data for the study of nutrition, food, animal feed, raw materials for the preparation of biodiesel, ...

14. Thesis-related publications:

1. Vo Thi Viet Dung, Nguyen Xuan Trung, Luu Duc Phuong, Luu Van Boi (2010), "Analysis of fatty acid composition of catfish fat useing for biodiesel production", *Journal of Chemistry* N 48 (4C), pp. 522–528.

2. Vo Thi Viet Dung, Nguyen Xuan Trung, Luu Van Boi (2011), "Optimization of the esterification process of pork fat for separation and determination of fatty acids using response surface methodology", *Journal of Science Technology* N49 (3), pp. 164–172.

3. Vo Thi Viet Dung, Nguyen Xuan Trung, Luu Van Boi (2011), "Separation and identification fatty acids in peanut oil and coconut oil by gas chromatography method", *Journal of Analytical Sciences* N16 (3A), pp. 14–20.

4. Vo Thi Viet Dung, Nguyen Xuan Trung, Luu Van Boi (2012), "Survey conditions gas chromatography flame ionization detector to separate and identify the fatty acids in soybean oil and sesame oil in Vietnam ", *Journal of chemica* N50 (4A), pp. 337–340.

5. Vo Thi Viet Dung, Nguyen Xuan Trung, Luu Van Boi (2012), "Optimization of the conditions of gas chromatography flame ionization detector for separation and determination of fatty acids in Vietnam's jatropha seed oil and rubber seed oil using response surface methodology", *Journal of Science and Technology*, Vietnam National University, Hanoi N28 (1S), pp. 29–34.

6. Vo Thi Viet Dung, Nguyen Xuan Trung, Luu Van Boi (2012), ""Optimize metabolism rubber seed oil ester using response surface methodology", *Journal of Science and Technology*, Vietnam National University, Hanoi N28 (1S), pp. 35–41.