Information on Doctoral thesis of Fellows Nguyen Thi Hong Ngoc

1. Full name: Nguyen Thi Hong Ngoc

2. Sex: Female

3. Date of birth: 29/11/1981

4. Place of birth: Ha Noi

5. Admission decision number: 2385/QĐ-SĐH dated 29/6/2007 by the President of Vietnam National University, Hanoi.

6. Changes in academic process: None

7. Official thesis title: Study on biological characteristics, genetic polymorphism and insecticide resistance of Anopheles leucosphyrus group in Vietnam.

8. Major: Genetics

9. Code: 62.42.70.01

10. Supervisors:

1. Assoc. Prof. Dr. Trinh Dinh Dat

2. Assoc. Prof. Dr. Ho Dinh Trung

11. Summary of the new findings of the thesis:

- There is a new form have differential genetic structure with other species of Anopheles leucosphyrus group in the North Vietnam (Bac Kan province), which have morphological characteristics intermediate between *An.dirus* and *An.takasagoensis* (temporally called as *Anopheles* Bac Kan form).

- Iidentified the genetic relationship between the species of Anopheles leucosphyrus group. Anopheles leucosphyrus group in Vietnam potentially exist two members are *An.dirus* and *Anopheles* Bac Kan form.

- *An.dirus* collected in Eachrang, Son Hoa, Phu Yen was possibility resistance with alphacypermethrin 30mg/m^2 and lamdacyhalothrin 0,05%, corresponding mortality rate is 92% and

89%. Permethrin resistance of *An.dirus* relevant to CYP6P9a and CYP6P9b locus with over expression of gene by 9 – 11 times.

12. Practical applicability:

Determining the correct species composition, prevalence of malaria parasites, genetic polymorphism of a main group malaria vector species as Anopheles leucosphyrus in Vietnam is very important. This helps epidemiologist have right assessment about vector situation in endemic areas as a basic to proposed effectively policies, strategies control and reduce the malaria burden to society.

13. Further research directions:

- Further study the biological and genetic characteristics (Chromosome, DNA…) of *Anopheles* Bac Kan form to correct name for this form.

- Further research on the chemiscal resistence of *An.dirus* using molecular biological methods.

14. Thesis-related publications:

1. Kohei Takenaka Takano, Ngoc Thi Hong Nguyen, Binh Thi Huong Nguyen, Toshihiko Sunahara, Michio Yasunami, Manh Duc Nguyen and Masahiro Takagi (2010), "Partial mitochondrial DNA sequences suggest the existence of a cryptic species within the Leucosphyrus group of the genus *Anopheles* (Diptera: Culicidae), forest malaria vector, in northern Vietnam", *Parasites & vector* 3(41), pp. 1756 - 3305.

2. Nguyen Thi Hong Ngoc, Trinh Dinh Dat, Ho Dinh Trung, Nguyen Duc Manh, Nguyen Thi Huong Binh (2010), "Updated information of studies on the classification and vectorial status of *Anopheles dirus* sensulato in Vietnam", *Journal of malaria and parasite diseases control* (3), pp. 39 – 44.

3. Nguyen Thi Hong Ngoc, Nguyen Thi Huong Binh, Ho Dinh Trung, Trinh Dinh Dat (2012), "Applies molecular biology techniques research insecticide resistance in *Anopheles dirus*", *Journal of malaria and parasite diseases control* (6), pp. 11 – 21.

4. Nguyen Thi Hong Ngoc, Ho Dinh Trung, Trinh Dinh Dat, Nguyen Hong Hanh (2012), "Assesment insecticide susceptibility of *An.dirus* in the field and selection for resistance with permethrin in a laboratories population (from HaiNan, China)", *Journal of malaria and parasite diseases control* (6), pp. 22 – 30.