



KYOTO UNIVERSITY GSGES SHORT TERM PROGRAMME



STUDY AND RESEARCH PLAN PRESENTATION

Student: Nguyen Thi Thuy An
Supervisor: Prof. Eiji NAWATA

INTRODUCTION

Name: NGUYEN THI THUY AN

From: Hue College of Science, Hue university

The period of study in Kyoto: 6 months



My supervisor in Kyoto → Prof. Eiji Nawata

My supervisor in Vietnam → PhD. Duong Van Hieu

First study topic: Research on the management of Biological resources in Tam Giang- Cau Hai lagoon in Thua Thien Hue province

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Objective

Assessing the management of biological resources in Tam Giang – Cau Hai lagoon in Thua Thien Hue province

MASTER'S THESIS

Study topic: “Determination of Heavy Metals in Sea Fish and Health Risk Assessment for Hue Consumers”.



objectives

- Investigating the species of fish that were consumed most popularly
- Determine the contents of heavy metals in the muscle of sea fish
- Assess sea fish quality and the health risk for humans



CASE STUDY:

- To study some species of fish that Hue people eat commonly and some kinds of heavy metals such as: Pb, As, Cu, Cd, Hg
- Study area: inner citadel Hue area (including 4 communes)



MASTER'S THESIS

Determination of Heavy Metals in Sea Fish and Health Risk Assessment for Hue Consumers

MATERIALS AND METHODS (1/3):

- **Dietary survey:** A questionnaire-based dietary survey was conducted to about 200 household wives randomly selected from the general population
- **Sample collection:** 4 species of fish were purchased from local markets in inner citadel area in March 2013. Fish were wrapped in aluminum foil, placed in polyethylene bags, and then stored frozen at $-20\text{ }^{\circ}\text{C}$ until analysis.
- **Sample preparation and extraction:**
 - filleting muscle tissues without skin of individual fish
 - Homogenised subsamples (about 2g) were digested in a HNO_3 - HCl mixture

MATERIALS AND METHODS (2/3):

- **Instrumental analysis:** Determination of metals was performed with a ICP-AES (Inductively Coupled Plasma – Atomic Emission Spectrometry)

- **Health Risk Estimation for Fish Consumption:**

→ **Non – carcinogenic Health Effects:** the basic equation for calculating systemic toxicity :

$$HQ = (C \times IR \times EF \times ED) / (RfD \times BW \times ATn)$$

HQ: Hazard ratio

C: Metal concentration in fish (mg kg⁻¹)

IR: Fish Ingestion Rate (kg day⁻¹)

EF: Exposure Frequency (day year⁻¹)

ED: Exposure Duration (years)

RfD: Reference Dose (mg kg day⁻¹)

BW: Body Weight (kg)

ATn: Lifetime (Average) (day year⁻¹)

$$HI = \sum HQs$$

HI: Hazard Index = sum of the Hazard ratios

MATERIALS AND METHODS (3/3):

- Health Risk Estimation for Fish Consumption:

→ Carcinogenic Health Effects: the basic equation for calculating excess lifetime cancer risk is

$$R = (C \times IR \times EF \times ED \times SF) / (BW \times ATc)$$

C: Metal concentration in fish (mg kg⁻¹)

IR: Fish Ingestion Rate (kg day⁻¹)

EF: Exposure Frequency (day year⁻¹)

ED: Exposure Duration (years)

SF: Slope factor

BW: Body Weight (kg)

ATc: Average time (day year⁻¹)

STUDY PLAN IN KYOTO UNIVERSITY

Topic: Research on Japanese organic farming as a model for Vietnamese alternative agriculture



Objectives

- Study on the systems of handling agricultural wastes that Japanese farmers are using for their farming.
- Study on the way they control pests and use pesticides effectively that did not affect consumer's health.
- Learn how the efficiency of current methods that Japanese farmers are operating.



Case Study:

- Focus on studying Agricultural wastes and Pesticides
- Study area: Kyoto

STUDY PLAN IN KYOTO UNIVERSITY

Research Japanese organic farming as a model for Vietnamese alternative agriculture

Research Methodologies:

- Investigating community: A questionnaire-based survey is conducted to about 20 to 30 farmer households randomly selected from the general population.
- Interview and discuss with experts
- Data analysis




















Expecting outcome:

- Find out the most suitable and effective way for handling Vietnamese agricultural wastes and using pesticides and fertilizers

STUDY PLAN IN KYOTO UNIVERSITY

Research Japanese organic farming as a model for Vietnamese alternative agriculture

Detailed study schedule:

<div style="text-align: right;">MONTHS</div> <div style="text-align: left;">CONTENTS</div>	April	May	June	July	August	September
1. Study and research plan presentation	24 th					
2. Enjoy class						
3. Study at lab						
4. investigating community						
5. Doing reports						
6. Field trip						
7. Achievement presentation						20 th

BENEFITS FROM STUDYING IN KYOTO UNIVERSITY

- There is huge literature sources for studying.
- Receive the large support of experienced professors.
- Contact to new methods for solving agricultural problems in real life and gain experiences in process of reaching sustainable agriculture
- Learn how to carry out a research

CONCLUSION

Studying in Kyoto university provides a great chance not only for completing my master thesis but also enhancing my background knowledge in my environmental department. Particularly, my current study in my country only is a way of agricultural product's testing because of healthy consumers. My study here, in Kyoto university is an addition for my thesis. In other ways, I will learn how to create safer agricultural products and an environmentally friendly agricultural system.

THANK YOU FOR YOUR LISTENING!