Overseas Practice on（**Field Epidemiology**・Collaborative Research）
report form（For Student）

2015/06/03 (Year/Month/Day)

Name	Ruchirada Changkwanyeun
Laboratory	Division of Bioresources
Year (Grade)	4th year PhD student
Place of practice	Laboratory of water quality, Faculty of Veterinary Medicine, Kasetsart University
Period of practice	20 April – 22 May 2015
Purpose	**Isolation of *Campylobacter* spp. from retail chicken samples in Thailand**

High prevalence of *Campylobacter* spp. in poultry products had been reported in developing and developed countries. It is already known that *C. jejuni* is a frequent commensal in poultry and cattle, and *C. coli* is a frequent commensal in swine and poultry. Contamination of retail products with Campylobacter spp. during the slaughter of poultry is a well-known problem of product hygiene. In Thailand, *Campylobacter* spp. was isolated from 12% of various food samples including pork, chickens, and vegetables in Bangkok. The incidence of *Campylobacter* spp. is as high as 40,000 per 100,000 for children below 5 years of age. However, the numbers of *C. jejuni* and *C. coli* cause campylobacteriosis illness from chicken meat consumption are not fully understood. Results could be gained by simulating the number of *C. jejuni* and *C. coli* contamination in chicken meat product and modeling the dose response of *Campylobacter* infection. Therefore, the purpose of this study was to evaluate the prevalence of *C. jejuni* and/or *C. coli* in chicken meat products, which sold in fresh market and super market in Thailand.

Samples collection: Chicken samples were collected from fresh market (40) (Figure 1)and super market (40) (Figure 2) near Kasetsart university, Kamphaeng Saen District, Nakhon Pathom. Five parts of chicken were collected, including chicken breast, chicken thigh, drumstick, chicken wing, and chicken tail. All samples were refrigerated at 2°C-8°C until transported in Styrofoam boxes with ice packs to the microbiological laboratory in Faculty of Veterinary Medicine, Kasetsart University.

Enrichment and plating: For the recovery of campylobacters, 25 g of each chicken sample were cut into small pieces using sterile scalpel blade on sterile Petri dishes. Each sample were added into a bag containing 100 ml of Bolton enrichment broth supplemented with 5% lysed horse blood and mixed for 2 min. The bottles were incubated for 48 h at 42°C in microaerophilic condition (5% O_2, 10% CO_2 and 85% N_2) generated from 3 gas packs (Figure 3). Enrichment cultures were streaked on modified charcoal-cefoperazone-deoxycholate agar (mCCDA) plates and incubated at 42°C for 48 h. Identification was done by examination of colony morphology, colony size, gram-stained for s-shaped or gull-wing shaped morphology.

Results : Under microscopic examination, *Campylobacter* was found in 3 samples of chicken thigh, which sold in supermarket and 1 sample of chicken tail, which sold in fresh market (Table 1, Figure 4). By the way, the plates of positive *Campylobacter* have been contaminated with other bacteria, thus mCCDA, preston agar, and trypticase soy broth (TSB) were used for purify the isolates and extract DNA.

After incubated at 42°C for 48 h, no growth of *Campylobacter* spp. was found in any plates (Figure 5-7). I was so surprise that *Campylobacter* spp. does not grow even in preston agar that does not have antibiotic as the supplement like mCCDA and Bolton broth. This might be due to:

- Chickens in both markets were freezed before sold to the costumer. Freezing in particular has been reported to reduce the numbers of campylobacters that can be isolated from chicken carcasses, and has been proposed as a method for reducing contamination levels on poultry meat.
- 25 g of weight samples was not enough to detect *Campylobacter* spp., I should increase the weight of samples.
- Bolton broth and mCCDA contains the antibiotic as supplement, *Campylobacter* spp. might not strong enough to grow on these media.

Table 1. Isolation of *Campylobacter* spp.

Chicken parts	Sources	
	Fresh market	Super market
Chicken breast	0/8	0/8
Chicken thigh	0/8	**3/8**
Drumstick	0/8	0/8
Chicken wing	0/8	0/8
Chicken tail	**1/8**	0/8

Figure 1. Chicken shop in fresh market in Thailand

Figure 2. Chicken shop in super market in Thailand

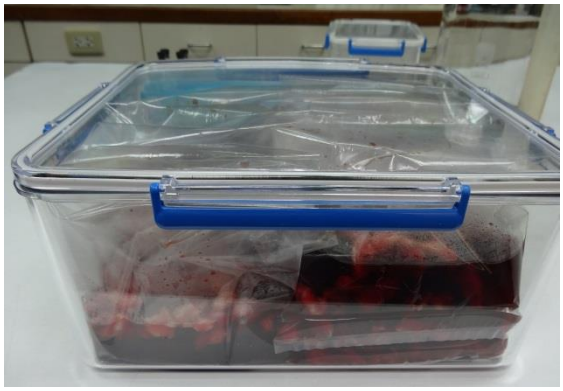

Figure 3. Enriched with Bolton broth and incubated at 42℃ for 48 h

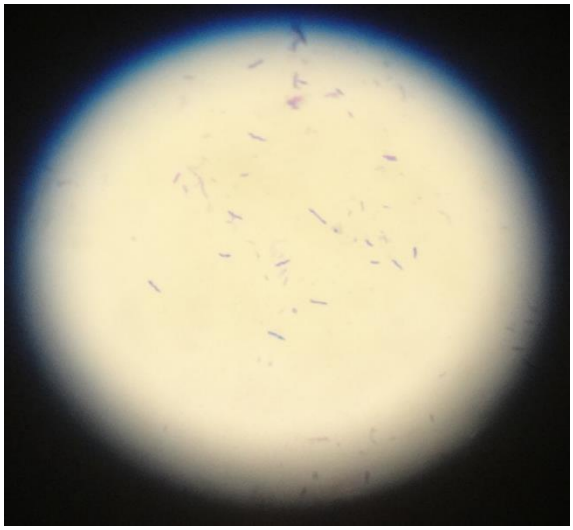

Figure 4. *Campylobacter* spp. under microscopic examination, which found in chicken tail in fresh market and chicken thigh in super market

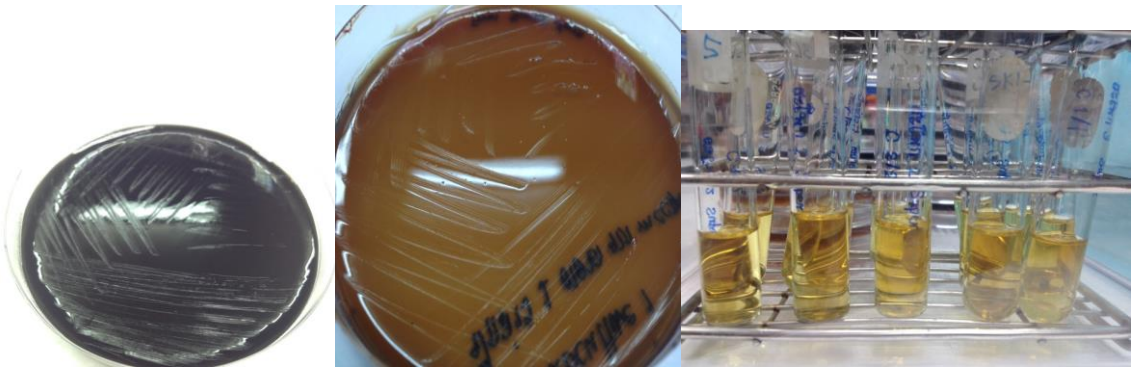

Figure 5-7. mCCDA, Preston agar, and TSB shown no growth of *Campylobacter* spp. after incubated at 42℃ for 48 h

（Field Epidemiology・Collaborative Research）Evaluation by supervisor

Institution・Official title・Name	印 Professor, Research Center for Zoonosis Control
Instead of the hard working, the isolation of *Campylobacter* was not successful in this field epidemiology. This might show the low prevalence of *Campylobacter* in chicken meat in both fresh market and super market. Repeated survey need to be done to confirm this result in the future.	

※1 Send the electronic file to the Leading School section, International Affairs Office, also submit the original print out with seal of supervisor to the Leading School section, International Affairs Office.

※2 The Steering Committee of the Leading Program will first confirm the content of this report and the report will be forwarded to the Educational Affairs Committee for credits evaluation.

Submit to：Leading School section, International Affairs Office

Ext: 9545　e-mail: leading@vetmed.hokudai.ac.jp