

(Abroad) Official trip report form (Student)

2013/ 10/15

Name	Marfo Jemima Tiwaa
Laboratory	Toxicology
Year (Grade)	D1
Destination	Offinso and Kwame Nkrumah University of Science and Technology - Ghana.
Period of trip	18 <sup>th</sup> August, 2013 to 17 <sup>th</sup> September, 2013
Purpose of trip	Sampling and Attendance of Symposium

## Summary of Activities

### 1. Sampling

I made a trip to Ghana from the 18<sup>th</sup> of August to 17<sup>th</sup> of September, 2013. The purpose of the trip was to do preliminary sampling of some biological and environmental samples from Offinso in the Ashanti region of Ghana and attend the 5<sup>th</sup> International Toxicology Symposium in Africa held in Kwame Nkrumah University of Science and Technology (KNUST), Kumasi in Ghana.

I arrived in Kumasi on 19<sup>th</sup> of August. On the next day, I went to KNUST to have a meeting with Dr. Osei Akoto (Lecturer, Department of Chemistry, KNUST) about the sampling. Dr. Akoto accompanied me to Offinso to make the necessary arrangement for sampling the next day and sampling commenced on that day. The purpose for the sampling was to do health risk assessment of some pesticides and Pharmaceutical and Personal Care Products (PPCPs) residue and their toxicological effect on animals and humans in Ghana. One of the most negative consequences of industrial development in the Ghana has been the use and disposal of chemicals that are potentially hazardous to human and animal health. Although the presence of trace levels of pesticides in food is considered as an indication that contamination has occurred, the risk of adverse health effects depends on their concentration, frequency of contact and duration of exposure. However, their use has been associated with several concerns including the risks to human health, the death of farm animals and the alteration of local environment.

Also, PPCPs have recently been identified in the environment and are considered potent endocrine disruptors, drivers for the development of antibiotic resistance and persistent chemicals in animals and humans. At present, little is known about the adverse effects of human and veterinary

drugs on animals, although standard acute toxicity data has been reported.

In Offinso, food crops and livestock contribute about 55% and 20% respectively to household income generation in the Municipality. The livestock farmers mostly abuse the use of veterinary drugs on their animals while the crop farmers also use a lot of pesticides on their crops to protect the later from pests and diseases. Pesticides are extensively used in the Offinso municipality for cocoa, vegetables, cereals and fruit production as well as vector-borne diseases for public health. Other major crops cultivated include cassava, maize, and plantain. The Offin river basin at Offinso is primarily an agriculture area and fish in the Offin River serves as important source of protein for some inhabitants in the community.

In order to do a preliminary experiment to ascertain the pesticide and PPCP pollution in the environment and its toxicological effect on human and animals , cattle urine, tomatoes, okra, egg plants, cassava, plantain, fish and soil samples (Table 1) were sampled from some suburbs at the Offinso municipality. Samples were kept on ice and transported to KNUST, where they were kept in refrigerator. Fish samples were identified at Department of freshwater and fisheries management, KNUST. I also collected some cattle urine samples from Kumasi when I finished the Offinso sampling from the 1<sup>st</sup> of September to 9<sup>th</sup> of September. Kumasi is a city center and therefore farming activities are not done much. Hence, cattle urine samples were also collected as control to compare with that sampled from the Offinso township.

Table 1: Samples collected during the Ghana sampling

SAMPLE NAME	NUMBER
Cattle urine	95
Tomatoes	28
Okra	45
Egg plant	28
Cassava	15
Plantain	15
Fish	14
Soil	31



Fig 1: Cattle urine collection



Fig 2: A cattle ranch at Offinso

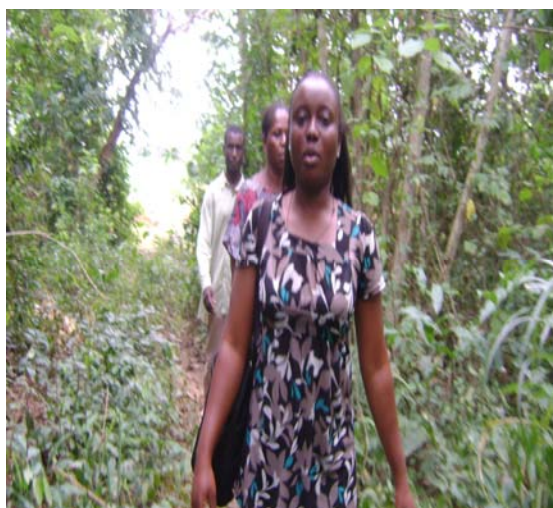


Fig 3: A visit to a farming area at Offinso



Fig 4: At the bank of the Offin River

## **2. Attendance of 5<sup>th</sup> International Toxicology Symposium in Africa**

The 5<sup>th</sup> International Toxicology Symposium in Africa I attended provided useful information and ample time for practice on my presentation and communication skills.

I had the privilege to participate as an organizer and presenter at the 5<sup>th</sup> International Toxicology Symposium in Africa which was jointly hosted by College of Science, KNUST, Ghana and Hokkaido University, Japan and sponsored by Japan Society for the Promotion of Science. It was held from 12<sup>th</sup> to 13<sup>th</sup> of September, 2013 at the auditorium of the College of Science, KNUST in Kumasi. More than 60 participants attended the conference including experts and students from Ghana, Sudan, Cameroon, Egypt, Nigeria, Kenya,

Tanzania, South Africa, Zambia, Congo, Uganda, Ethiopia and Japan as well as representatives from the organizing institutions. The presentation sessions included both oral and poster presentations on “The current situation of environmental pollution and toxicological topics in African countries”. The deduction I made from the various presentations was that the environmental pollution in Africa is on a surge due to increasing anthropogenic activities such as agricultural, industrial, etc. Furthermore, not much work is being done by various universities in the African continent to train toxicologists to manage the situation. Dr. Bashir from University of Gezira in Sudan presented on “Pesticides and toxicology education in Africa: status Quo and proposed programs”. This was one of the interesting presentations I have ever heard. Mostly, we discuss more on the causes of the pollution and extent of it but fail to find remedies to the problem. He advised that Africans are living in the “era of poison”, therefore, must not allow untrained or unlicensed people to deal with toxic chemicals such as pesticides but train professional to handle them.

At the symposium, I made a poster presentation on the topic, “Accumulation of mercury, arsenic, lead and other metals in organs of rats, sheep and goats from Dunkwa-on-Offin, Ghana” on the 12<sup>th</sup> and 13<sup>th</sup> of September. Through discussions, I interacted with many researchers in my field of study and acquired some knowledge on their current research works. This will improve my future collaboration with such experts.

The 5<sup>th</sup> International Toxicology Symposium provided a valuable learning experience for me and would recommend that more young scientists or researchers should be enrolled in the subsequent ones to enable them acquire more knowledge on how to manage pollution in Africa.



Fig 5: Sharing souvenirs at Conference



Fig 6: After poster presentation



Fig 7: Group picture of symposium participants