

## Phase I Financial and Scientific Report Template

### **Phase I Award Financial and Scientific Report (Maximum of 5 pages) (Required from all Phase I GCE Awardees)**

#### **1. Activities:**

We firmly established that water used for anal abluion after defecation in nearly 92% households was contaminated with diarrhea causing pathogens. Samples of water used for anal abluion were collected from Muslims homes in Kisumu and Kapsabet towns. Both sites in Kenya and from mixed Christian and Muslims homes in Musoma in Tanzania. Results showed that coliform bacteria mainly Escherichia coli, Salmonella species and Klebsiella species were present in abluion water. Viral agents also implicated for causing diarrhea were not determined because of lack of facilities. The presence or absence of coliform bacteria was sufficient to determine whether water was fecally contaminated or not. Methods for assaying abluion water were described in our interim report submitted in May, 2012.

#### **Plant collection and extraction**

Senecio lyratipartitus plant collection and extraction methods remained the same as previously reported in our interim report. Crude plant extracts and semi purified extracts were tested for activity against coliform bacteria. The semi purified ethyl acetate extracts showed improved activity than the non purified samples.

#### **Formulation and packaging of S.lyratipartitus**

Crude ethyl acetate extracts were mixed in commercially available petroleum jelly and packaged at Eldoret Laminated Tube Industries in tubes. A sample of a packaged tube was shown and demonstrated at the recent Second Fecal Sludge meeting (FSM 2) held in Durban, South Africa. A few participants who heard our paper presentation came forward to apply the jelly on their hands. The cost of a 30g tube without contents was US \$ 0.12. More experiments were needed to determine the shelf-life of the Senecio gel and acceptability to the intended end users and its potential to reduce incidences if diarrhea in a given population.

#### **Other activities**

##### **Conference attendance**

The Principal Investigator (PI) attended the AfricaSan 3 meeting held in Kigali Rwanda from July 19, 2011 to July 21, 2011. Recently the PI presented a paper at the Second Fecal Sludge meeting held in Durban South Africa from October 29th to November 2nd, 2012. The paper entitled "Using Senecio lyratipartitus as a hand disinfectant after anal abluion" has now been submitted to the Journal of Water, Sanitation and Hygiene for Development for publication and assigned manuscript number WASHDEV-D-12-00135. The paper summarizes the work done from inception up to now.

##### **Workshops attended**

Our research team hosted the GCE Informational workshop held at the University of Eastern African Baraton spearheaded by Kedest Hancock of the GCE Bill and Melinda Gates Foundation. The workshop was held on September 14, 2011.

The PI attended the Spring 2012 Round 6 GCE Phase II Proposal Development Workshop held in Dar es Salaam, Tanzania from March 6 to March 8, 2012. The workshop was instrumental in guiding our team in preparing and submitting our Phase II grant application. Our Phase II grant application was subsequently submitted on May 10, 2012.

### **Training**

At the request of the Kenya National Consortium for Health Research, our team hosted an internee for a period of six months (February 15 to August 15, 2012). The internee learnt research techniques and participated in our meetings. A number of our undergraduates students visited our laboratory and took part in some of our activities.

### **2. Challenges:**

At the commencement of our research activities we were not able to locate the plant *Senecio lyratipartitus* from Kakamega forest as we had previously thought. The search for the plant took us to Mount Elgon in Kenya to no avail. We were forced to go to the site known by the Principal Investigator in Tanzania. Soon after that someone suggested that we visit Sotik Town in Kenya. This last site has supplied all needed plant samples.

### **3. Other sources of project support:**

Apart from the University of Eastern Africa, Baraton providing laboratory space, security, janitorial services, electricity and water supply no other organization has come forward to financially support our research program simply because we did not venture to go out and look for extra funding. Our work load was also a limiting factor to apply for other grants.