

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details

Your name	Elihuruma Wilson
Project title	Phytochemical Investigation and Antimicrobial Activities of Extracts and Secondary Metabolites <i>Sterculia quinqueloba</i> (Garcke) K. Schum
RSG reference	14784-1
Reporting period	20/02/2014 to 20/03/2015
Amount of grant	£ 5963
Your email address	wilsonkilango@yahoo.com
Date of this report	20/03/2015

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
To perform efficacy study on the use of <i>Sterculia quinqueloba</i> for medicinal purposes			✓	The aerial parts particularly leaf part showed higher activity against common microorganisms, which causes many health problems in developing countries like Tanzania. These are bacteria that cause diarrhoea, pneumonia, tuberculosis, cholera, respiratory infections, skin infection and urinary tract infection. Fungus species tested were those which cause candidiasis and skin infections. I managed to publish all this information
To determine the toxicity activity of the plant parts used for medicinal purposes		✓		Given the budget it was not easy to perform both brine shrimp and acute toxicity study. Obtaining albino mice and its management for acute toxicity study became very expensive to handle than it was budgeted, I rather capitalise it by doing brine shrimp toxicity study for the two plants <i>Sterculia quinqueloba</i> and <i>Canthium crassum</i> . I also managed to publish this information
To determine the phytochemical constituent exist in the most active part			✓	I determined the phytochemical constituents of the most active part which was leaf part. The results obtained further verified the antimicrobial and larvicidal activity of the plant tested.
To deliver the results obtained from lab work to targeted community groups			✓	I deliver information to targeted community groups, traditional healers, village leaders and my fellow workers.
To implement tree planting activity through conservation education that stresses on the values of forests including medicinal values.		✓		Fund has been limited while some very important practices in conservation education coupled with demonstrating the values have been identified in this project, which I would wish to apply for 2 nd Small Grant Fund.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

The Gombe National Park's budget depends on performance of tourism activities. In the financial year 2014/2015 we have so far received fewer tourists than expected. Therefore some of the budgeted activities were cut-off including tree planting campaign and conservation education

activities. This has made me to not manage to complete my project as planned. I am planning to apply for more funding to complete this very useful part of the project.

3. Briefly describe the three most important outcomes of your project.

- The efficacy of the use of *Sterculia quinqueloba* and *Canthium crassum* as medicinal plants were determined scientifically. Attached are the published papers of medicinal potential of these plants.
 1. Antimicrobial and cytotoxic activities of extracts from *Sterculia quinqueloba* (Garcke) K. Schum and *Canthium crassum* Hiern.
 2. *In vitro* Antimycobacterial activity of *Sterculia quinqueloba* (Garcke) K. Schum and *Canthium crassum* Hiern.
- The importance of these tree species to the survival of wild primates particularly chimpanzee was further determined due to their medicinal value. It was determined that, this tree species have capabilities to kill bacterial species that both cause diseases to human and chimpanzee like respiratory infections and diarrhoea.
- Several community groups including, village leaders, village natural resources committee, and traditional healers were sensitised on the medicinal value of the Gombe forest and its entire ecosystem. Hence promote community to opt actions that support conservation.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

As part and core component of the project, the information was collected from community, researched and brought back to the same community. Community has therefore benefited from this project, by communicated results and proposal of planting these trees to their village land through agroforestry practices, and to their community forests.

5. Are there any plans to continue this work?

Yes, there is a big plan to educate students, teachers and entire community coupled with tree planting campaign of trees with medicinal values in the school land, farm land for agroforestry and community forests. The plan also is to generate income generating activities in those community forests like implementing beekeeping projects that has modern equipment which helps in serving the environment.

6. How do you plan to share the results of your work with others?

I shared my work through publishing papers in the journal and presentations to students and staff of The Nelson Mandela African Institution of Science and Technology. I have also let other organisation like Tropical Biology Association (TBA) (which I am among the alumni) about my work and they have agreed to publish in their website about this project and its impact to community. I will also share the results to others through presentation in various seminars, workshops and meetings inside and outside my organisation.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

13 months. I expected to finish the project earlier than that, but due to difficulties in obtaining some lab reagents and bacterial and fungal strains I used more time than expected.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Field equipment and sample collection expenses including capturing knowledge	1183	1596.5	(413.5)	The project started during rainy season, and the road infrastructure in many places around Kigoma is very bad which caused the increased expenses
Extraction of secondary metabolites from leaves, twigs, stem bark and root bark	947	990.3	(43)	Extraction went well
Determination of antimicrobial activity	1806	1649	167	Antimicrobial activity done well
Isolation and characterisation of secondary metabolites with high antimicrobial activity	1638	1269	369	Active part was only leaf and hence reduces some of the cost on phytochemical studies
Cytotoxicity activity	226	234	(7.9)	Cytotoxicity activity went well
Determination of acute toxicity activity	163	-	163	Not done due to limitation of the budget, and difficulties in obtaining the model animal (albino mice) given the time of the research.
Publication fee	-	223	(223)	Not budgeted but found very necessary to share the results obtained
TOTAL	5963	5960	3	The project activity went well

1£ sterling = 2,565 Tshs.

9. Looking ahead, what do you feel are the important next steps?

Important next steps are to sensitise entire community to take actions which favour conservation of forest by fully exploiting the values accrued from it, planting more trees in village land, and developing income generating activities which are environmentally friendly to increase the tangible benefit accrued from conserving the forests.

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

I used the logo during presentation of my results at Nelson Mandela African Institution of Science and Technology, Arusha, Tanzania. It got publicity and many students from this institution promised to apply for the fund to your institution. I am sure they have already started to apply the fund to your institution. I will also use the logo in many presentations that I will be made to students and various meetings in my organisation.

11. Any other comments?

This project has been very useful to my career as well, I thank you all Rufford team for approving this project. Due to this project and its impact, I was shifted from protection department to outreach department to ensure sustainability of the activities started. I am currently therefore the head of outreach department at Gombe National Park.