

**A REVIEW ON THE EFFECTS OF ROOFING
MATERIALS ON THE QUALITY OF
HARVESTED RAINWATER**

BY

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**A RESEARCH REPORT SUBMITTED TO THE FACULTY OF SCIENCE AND
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AWARD OF THE DEGREE OF BACHELOR OF SCIENCE WITH EDUCATION IN
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Declaration

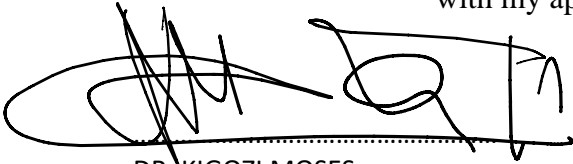
I hereby declare that this report “A Review on The Effects of Roofing Materials On The Quality Of Harvested Rain Water” is based on my own work and never published by any other person carried out during the course.

NAMAASA BRIGHT

BU/UP/2018/3487 Signature

Approval

This is to certify that Namaasa Bright carried out this study on “Effects of roofing materials on the quality of harvested rainwater”. He has been under my supervision and the report is now ready for submission to the chemistry department and the senate of Busitema University with my approval as a university supervisor.

A handwritten signature in black ink, consisting of several overlapping loops and strokes, positioned above a horizontal dotted line.

DR. KIGOZI MOSES

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DEDICATION

To all my friends, beloved Uncle James.W and including all those who guided me in different ways, particularly those who stood with me in support to achievement of the goals owing to this production of this paper. I thank you all for being encouraging and supportive.

May the almighty bless you.

Abstract

The rainwater harvesting is a common practice in remote areas of Africa as it's collected from rooftops which are some old hence corrode introducing ions into the water owing to the debris, dust thus affects the quality of water. This study is focused on the effects of roofing materials on the quality of water in the rural areas of Uganda. The analyses were done and found that the physical, chemical and bacteriological parameters were above the expectable standards as compared to the WHO permissible limits. The pH was acidic and contained traces of heavy metal ions. All these is as a result of agricultural activities. Coliform as bacterial indicator was present in the water. Therefore it's recommended that the rainwater should be suitably treated before consumption.

KEYWORDS: Rainwater harvesting, roof materials, water quality, pollutants

1.0. INTRODUCTION

1.1. Background

Humans rely on water from the very beginning as it is fundamental for contentment of the basic needs because water is necessary for the welfare of humankind and for strategic transformation (Musa J. J., 2013, Musa, 2013, Xiaoyan, 2002). It is vital for agriculture, household uses like drinking and sanitation thus acts an important role in the survival of the society however as a key resource, demand for water has risen due to population growth (OJO, 2019, Mahmoud, 2014). Accompanied with huge quantities of chemical compounds released into the atmosphere because of human activities that affects the chemical composition, brought by photochemical reactions in the atmosphere thus leading to materialization of new health hazards which in turn cause dangerous diseases and climate crisis in these areas (El Atta, 2010, Despins C, 2009, Maliszewska-Kordybach, 1998, Daum, 1996). Which has led to inadequate clean water supply (A. Akanwa, 2011, Okonkwo, 2017). Studies show that about 1.2billion people suffer insufficiency of safe drinking water and approximately 2.6billion people have no access to good sanitation as water resources became huge demanding to habitants in rural areas. (UNESCO, 2003, WHO, 2005). Yet safe drinking water is a human right cardinal to all, vicious of health risks most especially a challenge in many African remote areas. (Musa J J, 2016, Janice Lynn Ayog, 2016, Ankwa, 2020). Because of water scarcity, one of the ways to handle the problem of limited access to water is the pinpointing and usage of additional sources of water for example one of the identified is harvested rainwater. (Opare, 2012). Rainwater harvesting is an ancient technique of capturing rain from rooftops and other surfaces then stored for later use either portable or non-portable especially for rural societies with no water networks (Emmanuel O, 2019, (OJO, 2019, Li, 2010, Opare, 2012, Rahman, 2014). Rain water use as an alternative lowers the reliance on

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