



FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES

DEPARTMENT OF FISHERIES AND WATER RESOURCE MANAGEMENT

**PRESERVATION AND PROFITABILITY OF VALUE-ADDED FARMED NILE TILAPIA
(*OREOCHROMIS NILOTICUS*, LINNAEUS 1758) IN MBARARA CITY, UGANDA**

By

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BSC.FISHERIES AND WATER RESOURCE MANAGEMENT

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**RESEARCH REPORT IS SUBMITTED TO THE DEPARTMENT OF FISHERIES AND
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UNIVERSITY.**

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Declaration

I Muhoozi Timothy, hereby declare that this is my original work and has never been submitted to any other University or Institution of higher learning for an award of a degree or diploma.

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Approval

This is to certify that this report was compiled by Muhoozi Timothy from his research study undertaken at Mbarara Zonal Agricultural Research and Development Institute under my supervision.

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Dedication

I dedicate this report to my parents Mr. & Mrs. James Kahirita, my siblings, Sarah, Dorcus and Edward, and to all my friends that supported me financially, academically and spiritually during the course of research period.

May the Almighty God bless the work of your hands, protect and guide you all.

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List of acronyms

NARO	National Agricultural Research Organization
ZARDI	Zonal Agricultural Research and Development Institute
Ugx	Uganda Shillings
NDP	National Development Plan
GDP	Gross Domestic Product
USD	United States Dollars
FAO	Food and Agriculture Organization
UNICEF	United Nations Children's Fund
PUFAs	Polyunsaturated fatty acids
DHA	Docosahexaenoic acid
EPA	Eicosapentaenoic acid
VC	Variable cost
FC	Fixed cost
GM	Gross Margin
Kgs	Kilograms
Km	Kilometer

Abstract

To increase revenue and access to market for farmed fish in small holder fish farmers, assessment of fish preservation methods and profitability of value-added products was conducted in Mbarara City markets. The objectives were to determine the major fish value addition techniques and the net profit margin (%) of producing value-added farmed fish products using the dominant technique. A cross sectional survey was used to determine the dominant fish preservation techniques while a case study trial was used to determine the profitability of value-added farmed fish. Results showed that hot smoking was the dominant fish preservation technique used in Mbarara city markets followed by frying and slow freezing. Value addition by further processing of smoked fish into fish powder increased net profit from fresh fish by 46% (from Ugx. 87,500 (33.3 % Net Profit Margin) for every 25kg to 163,000 (37.5% Net Profit Margin) after sell of products within local markets. It was concluded that preservation by smoking was the most preferred fish preservation technique and subsequent value addition/processing made the fish farming enterprise more profitable in Mbarara city. It was recommended that preservation and value addition to farmed fish should be adoption among fish farmers, small scale fish processor and prospective investors to increase access to premium markets and profit margins.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

Fish is recognized in the National Development Plan (NDP III) among the ten priority agriculture commodities selected to foster a Sustainable Agro-industrialization agenda of Uganda (National Planning Authority, 2020). The fisheries sub-sector (both capture and aquaculture) contributes 3% to Uganda's Gross Domestic Product (GDP) and 12% to the Agriculture Sector GDP and also employs about 1.7 million people directly and over 3.5 million people indirectly along the fish value chain. (Fowler & Rauschendorfer, 2019). Fish and fish product exports are the second largest foreign exchange earner for Uganda (estimated at USD 174.2 million in 2019) after coffee (UBOS-Abstract, 2021a). Fish plays a critical role in achieving food and nutrition security. It is rich in high quality biological protein, essential fatty acids (omega -3 and omega -6), essential micronutrients (vitamins A, B12, D and minerals such as calcium, zinc, iodine, and iron) thus key in alleviating malnutrition globally (Mapfumo Blessing, 2019). Uganda has a potential for the development of aquaculture due to availability of natural water resources (about 43,942 km² of wetlands and 44,000 km² open water (about 18% of Uganda's total surface area of 241,550 km²) (Suleiman, 2011) as well as the strategic regional position for access to markets. Despite this potential, aquaculture in Uganda remains largely underdeveloped as a commercial industry, yet it was adopted as the only assured alternative to increase national fish supply, to bridge the deficit gap in Uganda's fish supply as wild fish catches continues decline against an increasing demand for fish (Jagger & Pender, 2001).

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