

IDENTIFICATION OF FUNGAL SPECIES MOST COMMONLY ASSOCIATED WITH
TOMATO ROTTING IN NAGONGERA TRADING CENTER, TORORO UGANDA

By

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DECLARATION

I, **AYEKO DAVIS** declare that this research report is my original work and has not been submitted for any other degree award to any other university before.

Signature.....*Ayeke Davis*.....

Date.....*30th May/2023*.....

APPROVAL

This research report has been submitted with approval of the following supervisor.

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Date : 31/05/2023

DEDICATION

I wholly dedicate this research to my lovely father MATAYO KWILAT, my mother CHERKUT IRENE, my sisters, brothers and to all my lecturers in the department of biology, Nagongera campus, Busitema University.

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Firstly, I thank the almighty God for the gift of life and opportunity he granted to me to undertake and successfully complete this research project.

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ABSTRACT

The fruit of *Lycopersicon esculentum* M. (tomato) is among important vegetable crop widely grown around the world. Their large water content and soft endocarp make them susceptible to spoilage by fungi. The spoiled, rotten, often broken ones are usually preferred by low-income earners because of their cheap prices. Isolation and identification of fungi associated with rotten tomatoes was carried out, to determine fungi involved in tomato spoilage. Some of the rotten tomatoes were procured from Nagongera market vendors. One gram of the infected part was put in the measuring cylinder and was subjected to a ten times dilution with sterile water and was shaken vigorously for even distribution of microbes. Two milliliters was inoculated onto PDA media and incubation was carried out at 27°C for five days. Strains of some of the fungal species that cause tomato rotting were identified. The results regarding the association of fungi with tomato post-harvest fruit rot indicated a significant variation among the different fungal isolates. Total of three different fungi species, *Aspergillus Niger*, *Fusarium oxysporum* and *Rhizopus stolonifer* were found to be associated with tomato post-harvest rot. Significantly highest frequency percentage of tissue infection was recorded for *Rhizopus stolonifer* (54.55%) followed by *Fusarium oxysporum* (30.30%) and lastly *Aspergillus Niger* with (15.15%).

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND

The *Lycopersicon esculentum* M. (tomato) is an important vegetable crop across the world, originated in South America (Kimura and Sinha, 2008). The fruits of tomato are popular throughout the world and are used in all kind of stews, soups and also eaten raw in salads. Ripe tomato fruits have high nutritive values, being a good source of vitamin A, B, C and minerals (Elsayed and Erdrees, 2004). Because of the importance of tomato as food, it has been bred to improve productivity, fruit quality, and resistance to biotic and abiotic stresses (Kimura and Sinha, 2008). Tomato has been widely used not only as food but also research material. Tomato is a major vegetable crop that has achieved tremendous popularity over the last century. It is grown in every country of the world-indoor fields, greenhouses and net houses (Barnett, 2012).

Tomato plants can grow up to 10 feet tall, but most species are less than three feet on average (Yoltas, 1985). Tomato plants are perennial, have a weak stem that often sprawls over the ground and vines overplants. Fruit of tomato are diverse in size and shape, ranging from small and round to large and variable shapes (Mickey H et al., 2016). The size of tomato varies depending on the plant species. Cherry tomato plants produce small, cherry-sized tomatoes (Yoltas, 1985). Tomato fruits contain high amount of carbohydrates, fats, organic acids, water, minerals, vitamins and pigments. Tomato fruits are used in garnishing various cooked food in Ugandan dishes and in many other parts of the world. It is estimated that ripe tomato fruits

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