**CHAPTER ONE**

**INTRODUCTION**

**1.1 Background of the Study**

Plants contain diverse groups of phytochemicals such as tannins, terpenoids, alkaloids, and flavonoids that possess enormous antimicrobial potentials against bacteria, fungi and other microorganisms. These are much safer than synthetic drugs and show lesser side effects (Ravi, 2011). The search for components with antimicrobial activities has gained increasing importance in recent times, due to growing worldwide concern about the alarming increase in the rate of infection by antibiotic-resistant microorganisms (Davis, 1982; Shittu *et al.,* 2007). Many plants have the potentials as potent remedies for treating different diseases, especially those used by indigenous people. It is therefore pertinent to provide scientific ground for such medicinal plants regardless of their habit, distribution, economic input and the use for which they are employed.

Antimicrobial activity has formed basis of many applications, including pharmaceutical, row and processed food preservations, alternative medicine and natural therapies. This aspect assumes a particular relevance due to an increased resistance of some bacteria strains to the most common antibiotics and antimicrobial agents for food preservation (Grainger, 2001; Bruneton, 2009).

Concern has been expressed about the rising prevalence of pathogenic microorganisms which are resistant to the newer or modern antibiotics that have been produced in the last three decades worldwide ([Cohen, 1992](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2816499/#R5); [Nascimento *et al.*, 2000](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2816499/#R18)). Coincidentally, the last decade has also witnessed increasing intensive studies on extracts and biologically active compounds isolated from plant species used for natural therapies or herbal medicine ([Nascimento *et al.*, 2000](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2816499/#R18); [Rios and Recio, 2005](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2816499/#R22)).

*Sesamum indicum* is a major constituent of an herbal preparation named Somina which has sedative, hypnotic and anxiolytic activities (Azmat *et al*., 2008). Kumar *et al.,* (2011) reported the anticonvulsant activity of *Sesamum indicum* using various animal models. Sesame oil contains carboxylic acids having a thioether, a sulphoxide or sulphon which function in dermatogical and cosmetic compositions promoting skin exfoliation in stimulating epidermal regeneration. They are also useful for controlling intrinsic and extrinsic skin ageing (Maignan, 1998).

**1.2 Statement of the Problem**

Increase in resistance of these pathogenic organisms, high cost, adulteration and potential side effects of these common antimicrobial drugs coupled with their inadequacy in treating diseases further compound the challenges of multi-drug resistant strains of pathogenic organisms. The seeds and oil of *Sesamum indicum* and its related species have received a lot of attention from researchers owing to the economic values of its parts; but the leaves have attracted only the locals who use it mostly as vegetable and in treating some diseases. It is however of concern that the species is gradually been relegated as some other vegetables have since been used as substitute to this highly valued green leafy species.

**1.3 Aim and Objectives**

**1.3.1 Aim**

This research work is to investigate the antimicrobial activity of *Sesamum indicum* against some pathogenic microorganisms. The purpose is to proof the ethnic claim of the antimicrobial effectiveness of this plant against microorganisms.

**1.3.2 Specific Objectives**

1. To investigate the antimicrobial activity of *Sesamum indicum* against some infectious bacteria and fungi (*Staphylococcus aureus, Pseudomonas aeruginosa and Candida albincans)*.
2. To determine the minimum inhibitory concentration for the selected microorganisms.
3. To examine the differences in the effectiveness of the aqueous extract obtained from the dried plant material and the extract from the fresh plant material.

**1.4 Significance of the Study**

The study will help in the acquisition of the knowledge of knowledge on the antimicrobial activity of the leaves especially the synergistic activity of aqueous extract of *Sesamum indicum* against some common pathogenic microorganisms.

**1.5 Scope and Limitation**

The research will be conducted to ascertain the Antimicrobial activity of aqueous extract of *Sesamum indicum* against some pathogenic microorganisms, such as bacteria and fungi (*Staphylococcus aureus, Pseudomonas aeruginosa and Candida albincans)*.