



## A Medicinal Plant's Extract Effective on Tuberculosis in Cases of Neoplastic Transformation in Tropical Nigeria

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**Abstract: Background:** Infection with tuberculosis is rampant in the tropics especially in crowded environments. It is also a nosocomial disease that can be managed if detected early. **Investigation:** 500g each of *Ocimum gratissimum* L. leaves, bark of *Psidium guajava* L., bark of *Psychanthus angolensis* (Welw) warb and leaves of *Spondias mombin* L. were ground and added to 2L of 95% alcohol (Sigma-Aldrich). The extract was left overnight for 24 hr. The extract was filtered and concentrated to about one-sixth of its original volume in *vacuo* using a rotary evaporator (Quick fit, Rotavapor-R, Buchi, Switzerland) at 30°C under low vacuum pressure and low evaporation. 50ml of the concentrated extract was given orally to twenty human subjects (n= 10 males; n=10 females) with neoplastic transformation diagnosed with tuberculosis at the General Out-Patient clinic of the University College Hospital, Ibadan, Nigeria. Oral application of extract to subjects was immediately before meal on a daily basis for a period of ten days. **Observation:** All subjects tested negative for tuberculosis within a period of fifteen days after end of therapy. **Conclusion:** The concentrated alcohol extract was effective on tuberculosis.

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**Keywords:** *Ocimum gratissimum* L.; *Psidium guajava* L.; *Psychanthus angolensis* (Welw); *Spondias mombin* L.; Leaves; Root bark; Alcohol extract; Tuberculosis; Neoplastic transformation

## 1. Introduction

Tuberculosis is caused by the bacterium *Mycobacterium* [1]. It is rampant in the tropics especially Nigeria whenever we have a crowded environment [2]. It is mainly presently predominant in the Nigerian rural setting [3] and is an indicator disease for HIV/AIDS [4]. Plants of medicinal value are used locally in Nigeria, West Africa for the treatment of tuberculosis [5].

In this investigation, a concentrated alcohol extract of *Ocimum gratissimum* L. leaves, bark of *Psidium guajava* L., bark of *Psychanthus angolensis* (Welw) warb and leaves of *Spondias mombin* L. was given orally to twenty adult human subjects diagnosed with tuberculosis. This was with the view to determining the extract's potential on *Mycobacterium* in the subjects.

## 2. Materials and Methods

### Identification of Plant Sample

*Ocimum gratissimum* L. leaves, bark of *Psidium guajava* L., bark of *Psychanthus angolensis* (Welw) warb and leaves of *Spondias mombin* L. were sourced and obtained at the environ of the University of Ibadan, Ibadan, Nigeria. They were identified in the Herbarium of the Department of Botany, University of Ibadan, Ibadan, Nigeria by Professor Taiye R. Fasola of the same department. They were kept in cellophane bags at room temperature prior to start of analysis.

### Preparation of Extract

500g each of *Ocimum gratissimum* L. leaves, bark of *Psidium guajava* L., bark of *Psychanthus angolensis* (Welw) warb and leaves of *Spondias mombin* L. were ground and added to 2L of 95% alcohol (Sigma-Aldrich). The extract was left overnight for 24 hr. The extract was filtered and concentrated to about one-sixth of its original volume in *vacuo* using a rotary evaporator (Quick fit, Rotavapor-R, Buchi, Switzerland) at 30°C under low vacuum pressure and low evaporation [6].

### Study Population

The study population included twenty adult individuals (n= 10 males; n=10 females) with neoplastic transformation within the age range of 25 years – 50 years within Ibadan metropolis, Ibadan, Nigeria diagnosed with tuberculosis at the Medical Out-Patient Unit of the University College Hospital, Ibadan, Nigeria. All the patients presented cough and weight loss.

## Oral Application of Extract

Twenty (20) adult human subjects with neoplastic transformation diagnosed with tuberculosis participated in this research investigation. Their consent to participate in the investigation was obtained after ethical approval from the University College Hospital Research Committee. 100ml of the concentrated extract was given orally to the twenty subjects. Oral application of extract to subjects was immediately before meal on a daily basis for a period of fifteen days.

## 3. Results

All the human subjects were diagnosed negative for tuberculosis after the period of oral application of the extract.

## 4. Discussion

Tuberculosis is a predominant disease in the tropics especially tropical Nigeria [5]. Risk factors to the disease include immunosuppression and exposure to the causal bacterium [5]. Tuberculosis is highly prevalent in the United States of America and around the globe. It is a leading indicator disease for HIV/AIDS. HIV is a retrovirus associated with cancers like the Kaposi's sarcoma [7, 8]. Infection with bacteria can lead to acute or chronic weight loss [7]. In Nigeria, West Africa, medicinal plants are used locally in the treatment of tuberculosis [5]. It was observed in this research investigation that the concentrated alcohol extract of *Ocimum gratissimum* L. leaves, bark of *Psidium guajava* L., bark of *Psychanthus angolensis* (Welw) warb and leaves of *Spondias mombin* L. was effective on *Mycobacterium* the causal bacterium of tuberculosis in cases of neoplastic transformation.

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