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**Assessment of Anticancer Potentials of *Guiera senegalensis* Leaf
using Cytotoxicity to *Artemia salina* as a Primary Screen**

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Introduction

- **Cancer remain a major public health challenge both in developed and developing countries.**
- **Every year, millions of people are diagnosed with cancer, leading to death. In 2002, about 10.9 million new cases were diagnosed which constitute about 6.7 million deaths, and 24.6 million persons living with cancer around the world (Parkin *et al.*, 2005).**
- **Cancer is the second leading cause of death in the United States (Hoyert *et al.*, 2005), where one in four deaths is due to cancer.**

Introduction

- **According to the American Cancer Society, deaths arising from cancer constitute 2–3% of the annual deaths recorded worldwide. Thus, cancer kills about 3500 million people annually all over the world (Prakash *et al.*, 2013; Rajandeeep *et al.*, 2011).**
- **In 2008, about 500,000 individuals in Sub-Saharan Africa reportedly died from cancer (Ferlay *et al.*, 2010) and new cases of cancer in the region is estimated to increase by 34 % (1.1 million) annually by 2020 (Adi *et al.*, 2011).**

Objectives

The objectives of the study is to determine:

- the quantitative phytochemical constituents of the crude extracts
- the antioxidant activity of the crude extracts
- the toxicity of the extracts to Brine shrimps (*Artemia salina*)

Methodology

- **Collection and identification of plant materials**
- **Quantitative phytochemical determination of plant extracts**
- **Antioxidant determination of plant extracts**
- **Brine Shrimp Lethality Test (BSLT) of the plant extracts**

Results and Discussion

Table 1: Percentage yield of plant extract

Extracts	<i>G. senegalensis</i> (%)
n-hexane	5.34
Chloroform	2.40
Ethyl acetate	3.42
Aqueous	20.56

Results and Discussion

Table 2: Quantitative phytochemical contents (mg/100g) of plant extracts

Samples	Phenols	Flavonoids	Tannins	Saponins	Alkaloids
GS ₁	730.36±18.30	88.36±1.98	54.48±1.49	55.90±1.70	38.65±2.51
GS ₂	732.15±3.20	120.51±14.06	71.78±1.47	51.30±0.90	52.45±3.04
GS ₃	861.66±6.03	196.51±0.00	57.16±1.00	46.50±2.10	126.24±7.31
GS ₄	700.74±0.47	30.00±0.11	60.52±0.82	40.80±2.80	80.88±0.99

Keys: GS₁ = n- hexane extract of *G. senegalensis* leaf, GS₂ = Chloroform extract of *G. senegalensis* leaf, GS₃ = Ethyl acetate extract of *G. senegalensis* leaf, GS₄ = Aqueous extract of *G. senegalensis* leaf

Results and Discussion

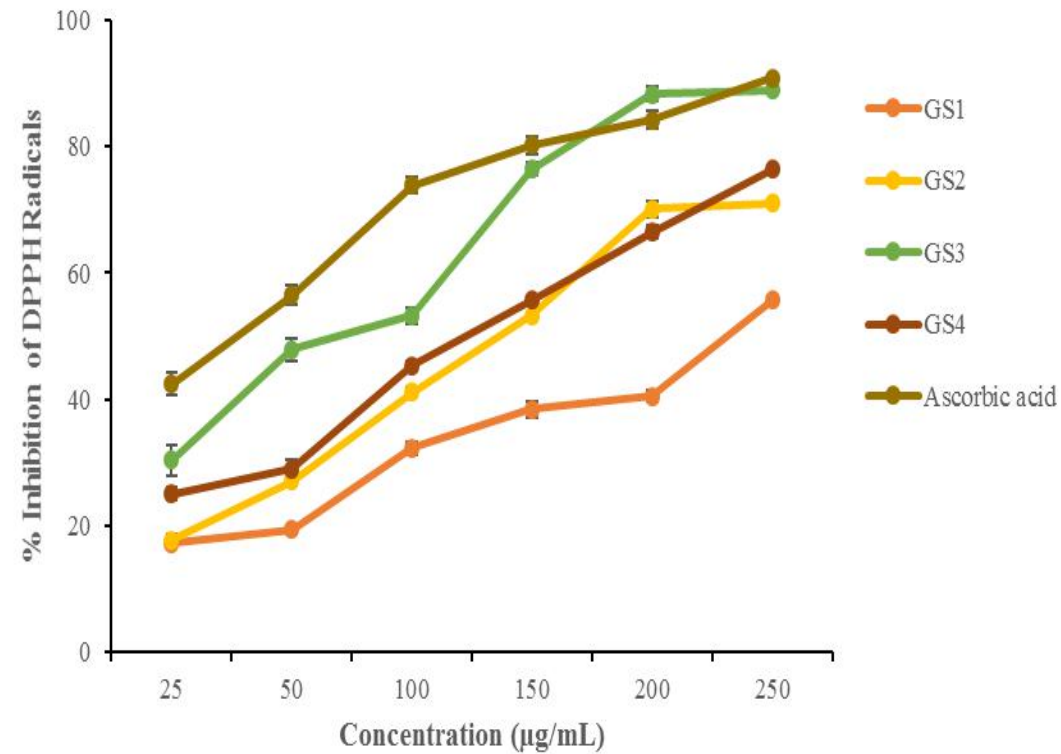


Figure 1: DPPH scavenging activity of extracts of *G. senegalensis*

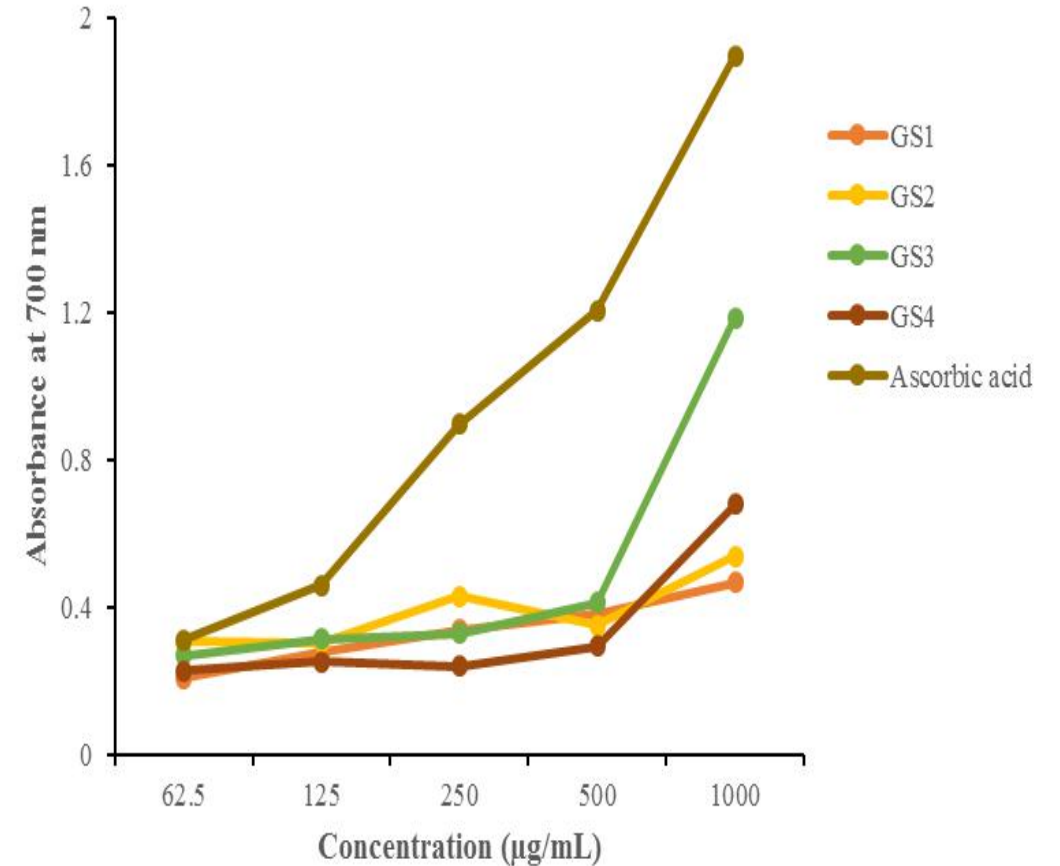


Figure 2: Reducing power assay of *G. senegalensis* extracts

Results and Discussion

Table 3: Cytotoxicity of plant extracts to *Artemia salina*

Extracts	LC ₅₀ (ppm)	LC ₉₀ (ppm)
GS ₁	12.710	1271.210
GS ₂	2.595	2204.192
GS ₃	105.447	770.022
GS ₄	0.270	18.600

Keys: GS₁ = n- hexane extract of *G. senegalensis* leaf, GS₂ = Chloroform extract of *G. senegalensis* leaf, GS₃ = Ethyl acetate extract of *G. senegalensis* leaf, GS₄ = Aqueous extract of *G. senegalensis* leaf

Conclusions & Recommendations

- The phytochemical contents of leaf extract of *G. senegalensis* shows the plant to be a good source of phytomedicines due to the high amount of the secondary metabolites presents particularly phenols and flavonoids.
- The antioxidant activity of the plant also shows that the plant can be an alternative source of antioxidants particularly the ethyl acetate extract.
- I therefore recommend that isolation and characterization of the bioactive component of the leaf extract of *G. senegalensis* should be carried out which can serve as a blueprint to the pharmaceutical industries in drug formulation.

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