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Research paper

Antibacterial influences of accacia spp. in ed-duiem locality, White Nile province, Sudan. a chemical, pharmaceutical and traditional medicine overview

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Abstract

This study was focused on potential medicinal influences of the medium layer extracts of Accacia nilotica plants on inhibition of pathogenic aureus influences of Staphylococcus bacteria. Plant extracts were done to achieve water extracts with different concentrations. Chemical and physical tests were done to access the activity of; the former include [flavonoids, glycosides, sapiens, resins, phenols, alkaloids, and tannins], the latter include [pH and temperature] as potential affecters for Staphylococcus aureus bacteria. Samples were collected from patients in Ed-Duiem hospital, White Nile Province, Sudan. Study results significantly showed ($p \leq 0.05$) that Accacia spp. Extracts are effective bacterial inhibitors.

Keywords: *Anti-Microbial Agents; Antibacterial Resistance; Bacterial Infections; Food Contaminated; Health Problems.*

1. Introduction

Many studies showed that Accacia spp derivatives are used as anti-microbial agents [12]. Due to health problems resulting from usage of intake of antibiotics, global decisions were taken to plants extracts, due to ease of obtaining and cheap price. This idea is referred to as "alternative medicine" [11]. Inspite that antibiotics are used as treatments It is a bacterial disease, and bacteria no longer respond to many antibiotics, so they threaten humans. When antibiotics are used in large quantities, they become resistant to them, so they are not affected by them, which makes them develop themselves for resistance[13].Monitoring the resistance of living microorganisms has become very important to know the effect of antibiotics on them [6].Food that contains bacteria that are pathogenic to humans and are not affected by antibiotics constitutes a source of danger to human life[4].Therefore, there is an urgent need to discover other antibiotics to eliminate bacteria that are not affected by previous antibiotics. [5].Acacia nilatica belongs to the mimosaceae family and has many therapeutic benefits. The fruits provide an infusion to treat diarrhea, especially in children. The fruits are very bitter, dry, and have a black interior, that is, a brown color. [7].

2. Statistical analysis

SPSS for study results was performed through diversity test and measurement of standard deviation (St-dev.) and differential factor.

3. Materials and methods

Methods were performed in accordance to the method described by [3] and [9].

4. Results

Table 1: Effects of Different Concentrations of Accacia Nilotica Extracts

Concentration %	Average of bacterial radius (mm) for bacteria inhibited via evaporation
10	-
20	10.3
50	11
70	11.3
100	14.6

- means negative (– ve) indication

Table 2: Minimum Antibacterial Extract Using Distilled Water (D.W)

Concentration %	Staphy lococcus aureus
10	-
20	+
50	+
70	+
100	+

+ means petri-dish zone preventing bacterial growth; - means petri-dish zone does not prevent bacterial growth.

Table 3: Extracts and Their Active Compounds

Extracts	The active compound	Detection massage	Study plant
Flavonoids	Anthocyanin	Dark bluish colour	+ + +
Glycosides	Anthraquinone	Red precipitate	+ + +
Saponins	Saponin	Dense foam for a long time	+ + +
Resins	Gum-Arabic	It will be turbid	+ + +
Phenols	3,3-Bis (3,5-di bromo-4hydroxy henyl)-2,1-benzoxathiole-1,1 (3H)-dione	Appearance of a blue-green color	+ + +
Alkaloids		Appearance of a white precipitate	+ + +
Tannins	Catechol	Appearance of a bluish green color	+ + +
Tannins		Appearance of white color	+ + +

It indicates its presence in large quantities+ + +.

5. Discussions

Study results (Table 1) showed average ($p \leq 0.5$) of bacterial radius (mm) that inhibited via evaporation are directly proportional with increased concentrations of Accacia extracts. (Table 2) showed that increased ($p \leq 0.5$) petri-dish zone was effectively preventing bacterial growth. These results are in agreement with [12] who stated that bacterial infectious outcomes are microbial resistance to conventional drugs. But no similar outcomes are observed when treated with Accacia extracts. Also study results are confirmed by [1] concluded that leaves extracts and barks of Accacia nilotica were effective for microorganisms and clinical isolates therapy. [14] Stated that using Acacia nilotica used in traditional medicine was effective against many humans' diseases. Acacia nilotica fruits were effective against two human bacterial pathogens. Medicinal plants were effectively used as an alternative therapeutic treatments against many infectious diseases, a good example is antimalarial therapeutic artemisinins, was originally derived from Artemisia annua. This plant is widely distributed in tropical and subtropical regions. The leaves, bark and pods of A. nilotica were effectively used against cancer, cough, diarrhea, fever, small pox, piles and menstrual problems [7]. Accacia spp derivatives were found to be effectively used as anti-microbial agents [12]. Due to negative effects related antibiotics; plants extracts were suggested to be an effective, ease and substitute. This idea is referred to as "alternative medicine" [11].

6. Conclusions

This study clearly revealed that Accacia nilotica plants inhibit bacterial growth, therefore it can be a cheap, available and natural alternative for antibiotics.

7. Recommendations

It is highly recommended to use Accacia nilotica extracts as a good antibacterial natural therapeutic agent. Further studies are also of crucial significance.

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