INTRODUCTION

The perennial vascular tree *Vachellia nilotica*, sometimes known as *Acacia nilotica*, is native to various African nations and was later brought to the Indian Ocean and to nations in the Middle East. *V. nilotica* is a fast-growing evergreen tree with a broad and rounded crown. Its height can range from around 2.5 meters in soil with poor growing circumstances to 14 meters or more in soil with favorable growing conditions (Anyam et al., 2021). The plant can endure high 

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, drought, and harsh temperature conditions while continuing to thrive for a very long time. This type of plant has been discovered to have a symbiotic interaction with soil organisms like bacteria. The bacteria are typically attached to the plant's aerial parts and fix atmospheric nitrogen for the plant to use and for other nearby plant species. For the local population, it is recognized as one of the most significant multipurpose dry land species. The young shoot parts of the plant are used as vegetables, and in countries is used as an ingredient in various food dishes, the plant can be medicinally to treat many infections. In the Northern part of Nigeria, the plant's native name is *Bagarawa* in the Hausa language, and can traditionally be processed in different parts of the plant mixed with some food supplements to treat health-related problems including dysentery, stomach ulcers, and piles (Dyer, 2014). It can also be used as chemical products, food, drink, wood for cooking, and living environmental management.

The flame thorn, or *Senegalia ataxacantha*, is a native African plant species. A ubiquitous tree in subtropical Africa, the flaming thorn grows from Senegal in the west to northeastern Sudan, from where it extends to the southern parts of the continent. The plant is typically restricted to water courses and ravines in drier land locations, but it can also be found as a typical bush constituent in arid regions near streams but in an area with higher rainfall because the plant does have good fairly drought-resistant properties. This plant is regarded as the common constituent of the bush, that is why it favors the forest margins (Kyalangalilwa et al., 2013). *S. ataxacantha* in their normal habit usually possess a multi-stem in system in which the stems are generally quite thin with single hooked thorns grown on young stems, possess alternate long leaves with bipinnate, it has large shrub with shoots scramble using their recurved prickles and slightly rounded crown with dark green foliage composed of very small pinnules, also flowers occur as clusters of cream-coloured terminal spikes which are fragrant and bloom during spring and summer, the plant fruits produced is attractive with the distinct and straight flat dehiscent long pod. This species of plant has variable habits and can be distinguished from other acacias by it is physical features of non–spinescent stipules and spicate inoflorescences. The stems of wood can be used to provide a good weaving material and produce good quality baskets, plant roots were used for making long-stemmed smoking pipes. This plant tree can be planted to demarcate an area with provide an efficient and hardy border, also used traditionally as medicine to cure health-related problems like constipation, ulcer, and stomach pain, it protect infants from the practice of magic for evil purposes.

The pharmacological and phytochemical activities studies of *S. ataxacantha* provide certitude to the traditional medicinal applications of the species against different diseases and medically the species have been confirmed as anti-inflammatory, antibacterial, antifungal, antioxidant, and anti-diabetic (Alfred, 2018). Studies of comprehensive chemical characterization and biological evaluation of *V. nilotica* and *S. ataxacantha* identified the plant species as good sources of enzyme inhibitors, antimicrobials, antiproliferative, and antioxidant agents (Dimitrina et al., 2021). However, because of the need to utilize plant valuable materials for economic purposes that is why this investigation aimed to compare the phytochemistry with anti-fungal infection studies of the economic trees *V. nilotica* and *S. ataxacantha* distributed within Katsina state of Nigeria.

Aim of the study be included here

MATERIALS AND METHODS

The survey was done about the economic trees *V. nilotica* and *S. ataxacantha* with some selected local government areas across the three senatorial zones in Katsina state of Nigeria. Samples of stems and leaves from two different tree plant species were collected and then put under shadow until the samples were completely dried. Therefore, the samples were separately processed into powdered form for phytochemistry.
About 150g powder for each sample was processed and ethanol were used for the laboratory activities, fan drops of Meyers reagent were added to two-centimeter cubes (2cm³) of the extract for each sample to test the presence of alkaloids or not. Two-centimeter cubes (2cm³) of the filtrates were treated with three (3) drops of 5% ferric chloride solution for each sample in order to test the presence of tannins. The presence of saponins was tested for each sample with five-centimeter cubes (5cm³) of the filtrates were vigorously shaken with distilled water and stood for some minutes. Five-centimeter cubes (5cm³) of the extracts for each sample were dissolved in two-milliliter (2ml) of chloroform and two-millilitre (2ml) of sulfuric acid were carefully added to the solution to test steroids. Then three-millilitre (3ml) were used for each sample filtrate and dissolved in (1ml) of 10% sodium hydroxide (NaOH) to observe the presence of flavonoids. Glycoside was tested for each plant sample using (2.5ml) of 5% sulfuric acid (H₂SO₄) added to five-centimeter cubes (5cm³) of the extract in a test tube for each sample separately, these mixtures were heated in boiling water for about (15) minutes, then cooled and neutralized with 10% of NaOH followed by adding of five-milliliter (5ml) of Fehling solution and the mixtures were also boiled for about (15) minutes in the boiling water for this observation. Comparisons were carried out based on the chemical compositions contained in different antifungal pharmaceutical products with the chemical constituents identified from two different shoot parts of the economic plant tree species.

**RESULT AND DISCUSSION**

Phytochemistry studies exposed the presence of alkaloids, saponins, cardiac glycosides, tannins, and flavonoids in the shoot parts of *V. nilotica* (Mrtiyunjoy et al., 2016). The carbohydrates and anthraquinone were detected in ethanol extract studies revealed that *V. nilotica* possess sterols and tannins; no alkaloids, saponins, or glycosides. Leaves of *V. nilotica* contain tannins, alkaloids, and sterols but no glycosides, saponins, resins, or flavonoids were detected (Okoro et al., 2014).

**Table 1:** Chemical constituents from the extract shoot parts of *V. nilotica* and *S. ataxacantha*

<table>
<thead>
<tr>
<th>Chemical Constituents/ extracts</th>
<th>Leaf of <em>V. nilotica</em></th>
<th>Stem of <em>V. nilotica</em></th>
<th>Leaf of <em>S. ataxacantha</em></th>
<th>Stem of <em>S. ataxacantha</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaloids</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Flavonoids</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Glycosides</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Saponins</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Steroids</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tannins</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The naturally organic chemical compounds presence in the shoot parts of *V. nilotica* in table 1 indicated that the plant is reach with these valuable chemical constituents. Phytochemical analysis of ethanol and petroleum ether extracts of the stem bark of *V. nilotica* exposed that the plant contains terpenoids, tannins, alkaloids, saponins, and glycosides (Deshpande, 2013).

Alkaloids and Saponins were only present in both leaf and stem extracts of *V. nilotica* when compared with other naturally organic chemical constituents found in the plant shoot parts. Alkaloids are generated by various higher plant organisms of about 10 to 25% of those organisms contain alkaloids. This organic chemical constituent is among the most important and best-known secondary metabolites, it generally mediates ecological interactions, which may produce a selective advantage for the plant organism by increasing its life survivability (Manske, 2014). Saponins, also referred to as triterpene glycosides, are bitter-tasting organic chemicals that are typically toxic to aquatic life. They are derived from plants and have a foamy appearance when agitated in water. However, they have also been isolated from marine life, including sea cucumbers and soapwort plants, whose roots were once used to make soap (Tsuno et al., 2018). The Sapindaceae family of botanical plants contains saponins as well. This organic substance acts as an anti-feedant, shielding the plant organisms from fungi and bacteria. Plant saponins derived from spinach and oats may lessen plant palatability in livestock diets and improve nutrient absorption to aid in animal digestion, or they may even include toxicity that might be fatal to animals. Some quantities of saponins in insects are harmful to insects and other cold-blooded creatures (Cotrim et al., 2023).

*S. ataxacantha* was found to have steroids only present in both major shoot parts from the chemical constituents. The leaves part of the plant was observed to have a higher content present of chemical constituents when compared with the stem part. *S. ataxacantha* is an important medicinal plant species used in tropical Africa against different human infectious diseases because Phytochemical screening of the plant indicated the presence of numerous bioactive compounds which include flavonoids, alkaloids, glycosides, saponins, and tannins (Compean et al., 2014). The presence of specific secondary metabolites in the *S. ataxacantha* plant extracts has been identified (Amoussa et al., 2016). These findings are vital information towards progressing the studies of the ethnopharmacologically relevant medicinal value of the plants in order to contribute to curing infectious diseases. The majority of medicinal plants produce a wide variety of secondary metabolites, or components and chemicals. This is a product of a plant’s defense mechanism or long-term evolution, which means that all of these things are done to help the plant adapt to its biological and ecological surroundings (Lozano et al., 2021). The connection that these secondary metabolites provide between different plant species and their natural environments is crucial, and the chemical components that are present in plants can be classified into various classes according to the unique metabolic functions that they perform.

Comparison in table 1 revealed the presence of valuable chemical constituents especially from the stem extracts of *V. nilotica* and leave extracts of *S. ataxacantha*. When these two different plant valuable shoot parts were utilized together, it can be enormous important in making various traditional medicines and can also be considered as excellent raw materials for making different pharmaceutical products to treat many infectious diseases (Marks et al., 2019). In tropical Africa, these two distinct plants’ essential shoot portions are used as a vital herbal remedy for sores and wounds, stomach...
issues, malaria, pneumonia, dental cavities and toothache, headaches, backaches, and abscesses (Alfred, 2018). Alkaloids, anthracene derivatives, carbohydrates, coumarins, flavonoids, lignan, naphthoquinone, polyphenols, reducing sugars, saponins, steroids, tannins, terpenoids, and triterpenoids are among the chemical components of these two different plant species. Betamethasone dipropionate, Neomycin, Ketoconazole, and Clobetasol propionate were the major compositions of any antifungal therapy and were sourced from the chemical organic compounds (BNF, 2018). The chemical constituents extracted from shoot parts of V. nilotica and S. ataxacantha are the secondary metabolites used to synthesize effective products for antifungal therapy (Moreno et al., 2014). Betamethasone and Neomycin can combine together as strong steroids and form a antifungal powerful formula that helps to target inflammation, itching, and irritation caused by health conditions such as dermatitis and eczema to protect and heal the skin against infections (WHO, 2019).

Ketoconazole is an imidazole derivative that is synthesized from imidazole, a chemical molecule found in many natural products, including alkaloids. Important biological building components like histidine and the related hormone histamine contain this ring of alkaloids (Elks, 2014). Numerous medications, including certain antifungals, the antibiotics in the nitroimidazole class, and the sedative midazolam, have an imidazole ring. For fungal infections of the skin and mucous membranes, such as ringworm, athlete's foot, candidiasis, jock itch, and tinea versicolor, ketoconazole is typically administered (KMP, 2019). Topical ketoconazole is also used to treat seborrheic dermatitis and dandruff in various parts of the body. It is possible that topical ketoconazole works in these situations by reducing the amount of the fungus Malassezia furfur on the skin (Young et al., 2015). Ketoconazole works against a wide range of fungi that cause diseases in humans, including Histoplasma, Candida, Coccidioides, Blastomyces, chromomycosis, and paracoccidioidomycosis. The azole antifungal drug that was initially administered orally was ketoconazole. However, due to ketoconazole's higher toxicity, lower absorption, and more constrained spectrum of activity, alternative azole antifungal medications, such as itraconazole, have essentially supplanted ketoconazole as a first-line systemic antifungal drug.

Lichen sclerosis, psoriasis, eczema, and herpes labialis are among the skin disorders that can be treated with clobetasol propionate. It is also used for other auto-immune diseases, such as lichen planus, alopecia areata, and mycosis fungoides, a T-cell skin lymphoma (Gbetoh et al., 2016). As a first-line treatment, it treats both acute and chronic GVHD of the skin.

CONCLUSION
The Vachellia nilotica and Senegalia ataxacantha are medicinal plant species used extensively in traditional medicine and pharmaceutical industries to treat various infectious diseases. This study revealed the presence of valuable chemical constituents, especially from the stem extracts of V. nilotica and leave extracts of S. ataxacantha considered excellent raw materials for making different pharmaceutical products to treat fungal infectious diseases. It could be of great interest for the Katsina State Government to consider these plant species as a good source of valuable raw materials for pharmaceutical industries to manage the plants and generate revenue. However, further investigation is needed in this field of studies to explore other potential medical benefits of these different plant species.

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