Phytochemical analysis of *Azadirachta indica* in Urban and Coastal Area

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Abstract: Antioxidants are involved in the prevention of cellular damage, which is common pathway for cancer, aging and varieties of diseases. The aim of this investigation was the determination of phytochemicals present in *Azadirachta indica* in Urban and Coastal area. The selected plant has varieties of phytochemicals such as Alkaloids, Flavonoids, Phenols, Saponins, Tannin and Terpinoids.

Key words: *Azadirachta indica.*

Introduction

Azadirachta indica is a member of the Meliaceae family and its role as health promoting effect is attributed because it is rich source of antioxidant. The plant has been widely used in the treatment and prevention of various diseases. Earlier finding confirmed that *Azadirachta indica* and its constituents play role in the scavenging of free radical generation and prevention of disease pathogenesis. The plant product or natural products show an important role in disease prevention and treatment through the enhancement of antioxidant activity, inhibition of bacterial growth and modulation of genetic pathways. The therapeutics role of number of plants in disease management is still being researched due to their less side effect and affordable. The present study describe the phytochemical analysis of *Azadirachta indica* in Urban and Coastal Area. It shows that Flavonoid and Saponin were highly found in studied plant.

Materials and Methods

The fresh Azadirachta indica leaf samples were collected from different areas of Urban and Coastal Area. It was dried and powdered. The collected samples were packed in plastic bag for phytochemical analysis.

Phytochemical screening

Active constituent in the plant extract of *Azadirachta indica* were identified and detected by performing chemical testes. Phytochemicals such as tannins, saponins, terpenoids such as flavonoids and alkaloids were detected in *Azadirachta indica*.

Test for presence alkaloid

0.1 g of powdered sample was added to 2ml of Hexane. Shaken well and filtered. This was followed by addition of 3ml of 2% Hydrochloric acid. The mixture was then heated and filtered. Add a drop of Picric acid to the filtrate to develop yellow precipitate indicative of the presence of alkaloids.

Test for presence anthraquinone

2ml of aqueous plant extract was boiled with concentrated Sulphuric acid (4ml) and shaken well. Then add 3ml of chloroform to the mixture. The chloroform layer was then pipetted out into a test tube containing 1ml of diluted Ammonia. The change in colour detect the presence of Anthraquinone.

Test for presence flavonoid

2ml aqueous filtrate of plant extract was mixed with 3ml of dilute Ammonia. Then add 1ml of concentrated sulphuric acid. Yellow colouration in extract showed the presence of flavonoid.

Test for presence reducing sugar (fehling's test)

About 0.2g of powdered plant sample in 1ml Ethanol was mixed with 2ml of distilled water. 1ml of Fehling' s solution A and B was taken in a test tube and boiled. Then it poured in the aqueous ethanolic plant extract. Colour change determine the presence of reducing sugars.

Test for presence saponin

Powdered plant sample (0.5g) was boiled in 10ml of distilled water and filtered. 2.5ml of distilled water was added to the filtrate (5ml) and shaken vigorously for a stable, persistent frothing. Frothing was mixed with 3 drops of saturated oil and was vigorously shaken again. The emulsion formed in it indicated the presence of saponin.

Test for presence tannin

About 0.5g of dried powder plant sample was boiled in 4ml of water in a test tube and then filtered. Then add few drops of 0.1% Ferric chloride. A brownish green or blue- black colouration indicative of the presence of tannin.

Test for presence terpinoid

3 ml of plant extract was mixed with 1ml of Chloroform and 1ml of concentrated Sulphuric acid. The intense red- brown colouration indicate the presence of terpinoids.

Phytochemical constituents of Azadirachta indica in Urban and Coastal area

Phytochemicals	Urban area	Coastal area
Alkaloids	+	+
Anthraquinones	-	-
Flavonoid	+	+
Phenol	+	+
Saponin	+	++
Tannin	+	+
Terpinoid	+	+

++ =highly present, +=slightly present, - =absent

Result and discussion

The present study found that the phytochemical analysis of Azadirachta indica results the presence of Alkaloids, Flavonoids, Phenol, Saponin, Tannin and Terpinoids and absence of Anthraquinones both in Urban and Coastal area. The antioxidants plays a great role in medical aspects[3]. Alkaloids are important phytochemicals with greater biological importance. The studied plant showing high anti cancer and anti microbial properties. Saponin helps to reduce cholesterol level and blood pressure. These are also regulate defensive mechanism in plants. Terpinoid plays an important role in wound and scar healing[6]. The presence of such phytochemicals shows the high antioxidant potential of *Azadirachta indica.*

Conclusion

From the present study The Phytochemical Analysis of Azadirachta indica in Urban and Coastal Area, ith could conclude that the studied plant is a rich source of Alkaloid, Flavonoid, Phenol, Saponin, Tannin and Terpinoids. These phytochemicals possess various activities such as radical scavenging and reducing activities. The metabolites are reported to have many biological and therapeutic properties so it is expected to have high potential for medical uses.

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