

Phytochemical Screening and Comparative Study of Juniperous Erecta Stem Using Different Extract

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Abstract

*The aim of study was investigating the phytochemical screening of water, ethanol and ether extract from fresh stem of **JUNIPEROUS ERECTA**. The phytochemical screening for extracted from fresh stem of **JUNIPEROUS ERECTA** was tested and shown positive result for phenol, saponins and lactone components and the ethanol and ether extract shows the positive result for terpenoids. However, the extract of fresh stem not show the positive result for alkaloids, tannins, protein, carbohydrate and anthocyanins components.*

Keywords: *JUNIPEROUS ERECTA, Phytochemical Screening, Carbohydrate, Anthocyanins*

INTRODUCTION

Phytochemical screening was study of antioxidant, antimicrobial, anti-inflammatory and analgesic activities (Rahman gul, 2017). Phtochemical are a powerful group of chemical that are derived from natural resource especially with plant origins.

The have shown to exhibit chemoprevention and chemotherapeutic

effects not only in cell lines and in animals (S.Zahra , 2015). Possible health benefits of these dietary components included protection against cardiovascular disease. Potential mechanisms of action and possible safety concerns are also considered (H. Wiseman, 2013). It provides the information on the sources of phytochemical and the usefulness of computational phytochemistry.

Phytochemistry is the study of the chemicals produced by plants particularly the secondary metabolites. They generally have biological activity in the plant host and it also play an important role in plant growth and used for self defense against insects, pests, pathogens, herbivores (Chukwuebuka Egbuna, 2018). It undergoes research can be classified as Polyphenols, Terpenoids, Alkaloids, Phytosterols and Organosulfur compounds. Most commonly found and studied phytochemical classes are polyphenols (Michael J. Orlich, 2017).

Many phytochemicals also act as pigments and give fruits and vegetables their varied and bright hues (futurelearn.com). It may cause beneficial health effects and it include flavonoids, glucosinolates, saponins, monoterpenes and capsinoids (H. Wiseman, 2013). It is also used for the study in medical and nutritional science because many of them have antioxidant, anticarcinogenic and neuroprotective.

MATERIALS AND METHODS

PREPARATION OF STEM EXTRACT WITH DIFFERENT SOLVENTS:

PREPARATION OF AQUEOUS EXTRACT:

About 5g of finely divided leaf of a Juniperous Erecta was weighted and

transferred into 250ml conical flask containing 100 ml distilled water was added and it was corked and heated in water bath for 30 minutes and kept aside for again 30 minutes and filtered.

PREPARATION OF ETHANOL EXTRACT:

About 5g of finely divided stem of a Juniperous Erecta was weighted and transferred into 250ml conical flask containing 100 ml ethanol was added and it was corked and kept aside for 3 days and filtered.

PREPARATION OF ETHEREXTRACT:

About 5g of finely divided leaf of a Juniperous Erecta was weighted and transferred into 250ml conical flask containing 100 ml ether was added and kept aside for 3 days and filtered.

MATERIAL FOR SCREENING STUDY

The chemicals used for phytochemical screening are Sodium hydroxide, Glacial Acetic acid, Concentrated Sulphuric acid, Acetic anhydride, Concentrated Nitric acid, Wagner's reagent, Lead acetate, Ferric chloride, Molisch reagent, Copper sulphate and Sodium nitroprusside.

PHYTOCHEMICAL SCREENING:

The methods used for the screening of phytochemical are given below as follows the tests of Alkaloids(Wagner's test), Flavonoids (Lead acetate Test), Phenol (Lead acetate Test), Tannins (Ferric chloride test), Saponins, Steroids (Libermann Burchard Test), Protein (Biuret test), Carbohydrates (Molisch test), Terpenoids (Salkaowski Test), Quinones, Anthocyanins, Coumains, lactones.

1. Test for alkaloids: Wagner's test

To 1ml of the extract, a few drops of wagners reagent were added and the formation of a reddish brown precipitate indicates the presence of alkaloids.

2. Test for flavanoids: Lead acetate Test

To 1ml of the extract, a few drops of 10% lead acetate solution were added, appearence of yellow colour indicates the presence of flavanoids.

3. Test for phenols: Lead acetate Test

To 1ml of the extract, few ml of 1% lead acetate solution was added and the formation of precipitate indicates the presence of phenolic compounds.

4. Test for Tannins: Ferric chloride test

To 2ml of the extract and 2ml of ferric chloride were mixed. Formation of blue colour indicates the presence of tannins.

5. Test for steroids: Libermann Burchard Test

To 1ml of the extract 1ml of glacial acetic acid and 1ml of acetic anhydride and two drops of concentrated sulphuric acid were added. The solution becomes blue, indicates the presence of steroids.

6. Test for saponins:

To 1ml of the extract was taken in a test tube and 20 ml of water is added. The mixture was shaken vigorously and kept for 3 minutes. Formation of forth shows the presence of saponins.

7. Test for proteins: Biuret test

To the plant extract, a Drop of copper sulphate and sodium hydroxides are added. Appearance of violet colour indicates the presence of proteins.

8. Test for carbohydrates: Molisch test

To the extract with Molisch reagent, add concentrated sulphuric acid along the sides to from layers a reddish violet

ring at the interference shows the presence of carbohydrates.

9. Test for Terpenoids: Salkaowski Test

A few drops of concentrated sulphuric acid was added to the plant extract, shake well and allow to stand for 2 minutes, lower layer turned yellow, indicates the presence of terpenoids

10. Test for quinones:

To 1ml of the extract, 1ml of concentrated sulphuric acid was added, formation of red colour indicates the presence of quinones.

11. Test for Anthocyanins:

To the substance, 10% of sodium hydroxide was added, appearance of blue colour indicates the presence of Anthocyanins.

12. Test for coumarins:

To 1ml of extract, 1ml of 10% sodium hydroxide was added. The presence of

coumarins is indicated by the formation of yellow colour.

13. Test for lactones:

To 2ml of extract, few drops of sodium nitroprusside and glacial acetic acid were added. Formation of deep red colour indicates the presence of Lactones.

RESULT AND DISCUSSION

The Leaf and Bark of Juniperous Erecta are taken separately in a conical flask. The water and ether is used as a solvent and the extract was prepared. The phytochemical screening of the aqueous extract and ether extract were conducted and following results were observed.

On comparing the water extract, ethanol extract and ether extract of stem phenol, saponins, lactones are present. Terpenoid present in the ethanol extract. Terpenoid, Quinones present in ether extract. Alkaloids, tannins, carbohydrates, anthocyanins are absent in stem extract.

Table-1 Phytochemical Screening of Water Extract

S. NO	PHYTO CHEMICALS	<i>JUNIPEROUS ERECTA</i> OF WATER EXTRACT
		STEM
1	Alkaloids	-

2	Flavonoids	-
3	Phenol	+
4	Tannins	-
5	Saponins	+
6	Protein	-
7	Carbohydrates	-
8	Terpenoids	-
9	Quinones	-
10	Anthocyanins	-
11	Coumains	-
12	lactones	+

Table-2 Phytochemical Screening of Ether Extract

S.NO	PHYTO CHEMICALS	JUNIPEROUS ERECTA STEM EXTRACT
		STEM
1	Alkaloids	-
2	Flavonoids	-
3	Phenol	+
4	Tannins	-
5	Saponins	+
6	Protein	-
7	Carbohydrates	-
8	Terpenoids	-
9	Quinones	+
10	Anthocyanins	-
11	Coumains	-
12	lactones	+

Table-3 Phytochemical Screening of Ethanol Extract

S. NO	PHYTO CHEMICALS	JUNIPEROUS ERECTA OF ETHER EXTRACT
		STEM
1	Alkaloids	-
2	Flavonoids	-
3	Phenol	+
4	Tannins	-
5	Saponins	+
6	Protein	-
7	Carbohydrates	-
8	Terpenoids	+
9	Quinones	+
10	Anthocyanins	-
11	Coumarins	-
12	lactones	+

CONCLUSION

The stem of JUNIPEROUS ERECTA are phytochemically screened for aqueous, ethanol and ether and presence of various phytoconstitutes were observed.

Apple Academic Press/CRC Press,
Taylor and Francis.Dec 2018

REFERENCES

1. ChukwuebukaEgbuna Jonathan
ChinenyeIfemejeToskë L.
KryeziuMinakshi Mukherjee
Phytochemistry, Volume,
Fundamentals, Modern
Techniques, and Applications
Edition: 1st Chapter :1. Publisher:

2. DOI:10.13140//RG.2.2.18812.2368
7

3. H.Wiseman in Encyclopedia of
Human Nutrition(Thrid Edition)
2013.

4. H. Wiseman, in Encyclopedia of
Human Nutrition (Third Edition) ,
2013

5. [https:// www.futurelearn. Com](https://www.futurelearn.Com)

6. Michael J. Orlich,... Sarah Jung,
inVegetarian and Plant - Based
Diets in Health and Disease
Prevention, 2017

7. S.ZahraBathaieFyuhikotamanoi in
the enzymes, mechanism of the
anticancer effect of
phytochemicals, 2015.

8. Rahman gul, syedumerjan,
syedfaridullah, samullahsherani
and nusartjahn published 13 march
2017.