

Phytochemical Screening of Different Solvents Extracts of Flower of *Capparis decidua* (Forsk) Edgew

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ABSTRACT :

The present investigation was phytochemical screening of flower of *Capparis decidua* (Forsk.) Edgew. The flower was extracted by using different solvents such as Aqueous, Acetone, Methanol, Hexane and Chloroform. *Capparis decidua* (Forsk.) Edgew, commonly known as Kair, belongs to the family *Capparidaceae*. The Flower buds are used for eaten to relieve stomach ache. The phytochemical analysis divulge presence of alkaloids, flavonoids, steroids, terpenoids, glycosides, saponins, phenols, tannins, proteins, amino acids, carbohydrates and reducing sugar in varying concentration. However, steroids, terpenoids and glycosides were found in all solvents extracts of flower. Alkaloids and Carbohydrates were found in aqueous, acetone and methanol extracts. Flavonoids and Amino acids were found in hexane extract. Phenol, Tannin, Protein and Amino acid were found in aqueous and methanol extracts. Reducing sugar also found in aqueous, methanol and chloroform extracts. *Capparis decidua* flower was used in ethno medicine, including treating stomach disorders and skin diseases, for both humans and animals. Phytochemical screening of medicinal plants is essential to find out and develop novel therapeutic agent.

Keywords: *Capparis decidua*, flower extracts, phytochemical screening

I. INTRODUCTION

Phytochemical have been recognized as starting point for traditional herbal medicine (Lalitha .T.P. 2012). They are bioactive chemicals of plant origin. They are naturally synthesized in all parts of the plant body, bark, leaves, stem, root, flower, fruits, seeds etc (Tiwari P. 2011). All most 80% of the world's population relies on traditional medicines for primary health supervision, most of which require the use of plant extracts. In India almost 95% of the prescriptions were used in Unani, Ayurveda, Homeopathy and Siddha (Satyavati G.V. 1987).

Extraction is the separation of medicinally active portions of plant tissue using selective solvent through standard procedures. The extract thus obtained after standardization, may be used as medicinal agent as such in the form of solution or fluid extracts or further processed to be incorporated in any dosage form such as tablets and capsules. These products contain complex mixture of many medicinal plant metabolites, such as alkaloids, glycosides, terpenoids, flavonoids and lignans (Handa S.S. 2008).

Capparis decidua (Forsk.) Edgew, commonly known as Kair. Kair is chiefly found in dry and arid regions growing wild in Rajasthan, Gujarat, Punjab and Western Ghats of India. Flowers are pink in colour, red-veined, in small groups along the leafless shoots, in the axils of spines. Red conspicuous flower appear in March to April (Sushila .R. 2010).

The present investigation to study the phytochemical screening of the different solvents extract of Flower of *Capparis decidua*.

II. EXPERIMENTAL WORK

Plant Material: Plant material Flower of *Capparis decidua* (Forsk.) Edgew was obtained from desert area in Gujarat, India.

Processing of plant material: The flower were washed in running tap water several times for remove the dust particle and then dried under shade 2-3 weeks. The dried material was taken and ground using electric blender mixture to obtain a fine powder. The powder sample were stored in a clean glass bottle until needed for analysis.

Preparation of extracts: The dried and ground powder 10 gm were successively extracted in 100 ml with different solvents like Aqueous, Acetone, Methanol, Hexane and Chloroform for 24 hrs stand at room temperature. Extracted sample was filtered with Whatman No.1 filter paper. The filtrate extract was stored in refrigerator at 4°C until use.

Phytochemical Screening: The flower extracts of *Capparis decidua* were analysed for the presence of alkaloids, flavonoids, steroids, terpenoids, glycosides, saponins, phenols, tannins, proteins, amino acids, carbohydrates and reducing sugar according to the common phytochemical methods described by Brain and Turner (1975).

Test for Alkaloids

A known quantity 3ml of the extract was taken and added to 1ml of dilute hydrochloric acid and boiled gently for 20 min, after boiling, it was cooled and filtered. The filtrate was subjected to Mayer's test. Filtrate was treated with 2 drops of Mayer's reagent were added. Formation of yellow colored precipitate indicated the presence of alkaloids.

Test for Flavonoids

Alkaline reagent test : A known quantity 4 ml of the extract was treated with 10% NaOH solution, formation of intense yellow colour indicates presence of flavonoid.

Test for Steroids

Salkowski Test : A known quantity 2ml of the test sample was extracted in the 2ml of chloroform and filtered. The filtrate was mixed with 2 ml of conc. H₂SO₄ carefully so that the sulphuric acid formed a lower layer. A reddish-brown colour at the interphase indicated the presence of steroidal ring.

Test for Terpenoids

Chloroform test: The known quantity 3ml of extract was taken mix with 3ml of chloroform and add conc. H₂SO₄ carefully to form a layer and observed for presence of reddish brown colour.

Test for Glycosides

Keller-Killani Test: The known quantity 2ml of extract was treated with 2ml glacial acetic acid containing a drop of FeCl₃. A brown colour ring indicates the presence of glycosides.

Test for Saponins

Foam test : The known quantity 2ml of extract was added 6ml of water in a test tube. The mixture was shaken vigorously and observed for the formation of persistent foam that confirms the presence of saponins.

Test for Phenols

Ferric chloride test: The known quantity 2ml of the extracts was treated with aqueous 5% ferric chloride and observed for formation of deep blue or black colour.

Test for Tannins

Braymer's test: The known quantity 2ml of the extracts was treated with 10% alcoholic ferric chloride solution and observed for formation of deep blue or greenish colour.

Test for Proteins

Xanthoproteic test: The known quantity 2ml of the extracts was treated with few drops of concentrated HNO₃ formation of yellow colour indicates the presence of protein.

Test for Amino acids

Ninhydrin test: The known quantity 2ml of the extracts was treated with 2 ml of ninhydrin solution and boil for few minutes, formation of blue or purple colour indicates the presence of amino acids.

Test for Carbohydrates

Molish's test : The known quantity 2ml of the extracts was treated with few drops of Molish's reagent and add 2ml of concentrate H₂SO₄ down the side of the test tube formation of violet ring at the junction indicates the presence of carbohydrates.

Test for Reducing Sugars

Fehling test: The known quantity 2ml of the extracts was hydrolyzed with dilute HCl and neutralized with alkali and heated with Fehling's solution A and B, formation of red ppt indicates the presence of reducing sugars.

III.RESULTS AND DISCUSSION

Results acquired for preliminary phytochemical screening in different solvents extracts of flower of *Capparis decidua* are

presented in Table.1

On the Twelve phytochemicals screened was found present in various solvents extracts. They are Alkaloids, Flavonoids, Steroids, Terpenoids, Glycosides, Saponins, Phenols, Tannins, Proteins, Amino Acids, Carbohydrates and Reducing Sugars. Steroids, Terpenoids, Glycosides and Carbohydrates were present in all solvents extracts.

Table 1. Results of phytochemical screening of Flower of *Capparis decidua*

Phytochemicals	Different solvents extracts				
	Aqueous	Acetone	Methanol	Hexane	Chloroform
Alkaloids	+	+	++	-	-
Flavonoids	-	-	-	+	-
Steroids	++	+	+++	+	+
Terpenoids	+++	+	+++	+	+
Glycosides	+	+	+	+	++
Saponins	-	++	++	-	-
Phenols	+++	-	++	-	-
Tannins	+++	-	++	-	-
Proteins	++	-	+	-	-
Amino acids	+++	-	+++	+	-
Carbohydrates	+++	+++	+++	-	-
Reducing Sugars	+++	-	+	-	+++

Key: (+) = present (-) = absent

Alkaloids, Steroids, Terpenoids, Glycosides, Phenols, Tannins, Proteins, Amino acids and Reducing sugars were present in Aqueous extract. Alkaloids, Steroids, Terpenoids, Glycosides, Saponins and Carbohydrates were present in Acetone extract. Alkaloids, Steroids, Terpenoids, Glycosidase, Saponins, Phenol, Tannins, Proteins, Amino acids, Carbohydrates and Reducing Sugar were present in Methanol extract. Flavanoids, Steroids, Terpenoids, Glycosides and Amino acid were present in Hexane extracts. Steroids, Terpenoids, Glycosides and Reducing sugar were found in Chloroform extract. The Glycosides are applicable in lowering blood pressure, treatment of congestive heart failure and cardiac arrhythmia (Nyarko A.A. 1990). Terpenoids are applicable in treatment of cough, asthma and hay fever. Steroids show the analgesic properties and responsible for central nervous system activities (Akindele A.J. 2007). Saponins have been extensively traditionally applicable as detergents and pesticides in inclusion to their industrial applications as foaming and surface active agents and also health benefits effects (Shi J.K. 2004). The growth of many fungi, yeast, bacteria and viruses was inhibited by Tannins (Chung K.T. 1998). Phenol acts as antioxidants (Han X. 2005).

IV. CONCLUSION AND FUTURE SCOPE

Phytochemicals found present in Flower extracts of *Capparis decidua* their potential as source of principles that may supply novel drugs or medicines. Further studies are therefore suggested to ascertain their antibacterial, antifungal and antidiabetic activities.

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