WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 9, 878-882. Research Article ISSN 2277– 7105

PHYTOCHEMICAL ANALYSIS OF PIGEON PEA (CAJANUS CAJAN) LEAVES IN SATNA DISTRICT OF MADHYA PRADESH

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Article Received on
10 May 2022,

Revised on 31 May 2022,
Accepted on 21 June 2022

DOI: 10.20959/wjpr20229-24630

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ABSTRACT

Pigeon pea (*Cajanus cajan* (L) Millsp), is a popular perennial legume shrub. It is mostly cultivated in semi-arid tropical area. Its seeds and leaves are used for medicinal as well as fed purpose. Pigeon pea is used as traditional medicine in various countries like Indonesia, China, India, Myanmar etc due to its rich nutritious value. Leaves and seeds are the rich source of protein, vitamin, crude fibers, dietary fibers, minerals and energy. It is used to treatment of various types of human disorders like malaria, wound, asthma, respiratory infection, dysentery, tooth ache, abdominal tumor, menstrual disorders etc. It is also used to preparation of herbal compound formulations. The present study deals with the phytochemical investigation of *Pigeon pea* leaves in various solvent system.

KEYWORDS: Pigeon pea, Phytochemical analysis, Fabaceae.

INTRODUCTION

The Pigeon pea (*Cajanus cajan*), family Fabaceae is a perennial legume shrub which is commonly known as *Arhar* in Hindi, Pigeon pea in English and *Tuar dal* in Bengali.[1,2] Pigeon pea is grown widely as dietary legume crops in India and other countries. Its seeds are used to preparation of several herbal formulations as well as treatment of various human diseases and leaves are used to treat the several human and animal diseases.[3-6] Arhar seeds a rich source of protein, carbohydrate, minerals and vitamins. The seed contain about 51.4% to 58.8% of carbohydrates, 1.2% to 8.1% crude fiber and 0.6% to 3.8%. Protein rich seeds have

also been Incorporated into starch flour to produce acceptable extruded products.[7,8] It is the main source of dietary nutrients such as magnesium, potassium, sulphur, calcium, nitrogen.[9,10] In view of this plant useful in medicinal and health purpose, the present study has been undertaken to analysis the phytochemical of pigeon pea leaf.

MATERIAL AND METHODS[11-14]

Collection of plant material

The leaves of *Cajanus cajan* was collected from *Gahwara* farm, district Satna (M.P.), India and was self-identified in the Botany laboratory of Shri Rama Krishna College, Satna (M.P).

Preparation of sampling material

The collected leaves were dried at room temperature. Then, grinded it through mixture grinder and stored it in air tight container, the powder of leaves were used for phytochemical analysis.

Preparation of tests solution

For phytochemical analysis, the extracts were prepared by taking the sample of dried powder quantity each of 2gm in different 250 ml conical flasks and 50 ml solvent (aqueous chloroform, aetone, diethyl ether, and benzene), was added in each conical flask. All conical flasks were plugged with cotton plug and leveled to stand for 1 to 2 hours, after that, filtered using Whatman filter paper no.1, and then the filtrate solutions were ready for testing.

Phytochemical analysis method[15,16,17]

Different phytochemical present in the plants are qualitatively analyzed. The ethanol and aqueous extracts were prepared and then different chemical compounds were detected.

Wagner's test for alkaloids: 1 ml of alcoholic extract is acidified with a (V/V) HCl and a few drops of Wagner's reagent was added to it. Presence of alkaloids is indicated by formation of yellow or brown coloured precipitate.

Test for Tannins: To 1-2 ml of aqueous extract, few drops of 5% $FeCl_3$ is added. A green colour indicates the presence of allotannins while a brown colour tannins.

Test for Resins: 1 ml of aqueous extract of the drug is dissolved in 2 ml of acetone and then the solution is poured in a tube containing 2-3 ml of distilled water. Appearance of turbidity indicate the presence of resins.

Test for Saponins: To 5 ml of aqueous extract, a drop of $NaHCO_3$ is added and shaken vigorously and left for few minutes. Formation of honey- comb like forth indicates the presence of saponins.

Test for flavonoids: 5-10 drops of dil HCl is added to 0.5 ml of alcoholic extract of the drug and pieces of mg metal is added. Pink, reddish-pink or brown colour is developed.

Fehling's test for carbohydrates: 2 ml of aqueous extract is taken in a test tube and 1 ml of a mixture of fehling's solution 'A' and 'B' is added and boiled for a few minutes. formation of brick red precipitate indicates presence of carbohydrates.

Biuret test for proteins: to 1 ml of hot aqueous extract, 5-8 drops of 10% (w/v) NaOH solution is added falirued by 1-2 drops of 3% (w/v) $CuSO_4$ solution. A violet colour indicate the presence of proteins.

RESULT AND DISCUSSION

Properly processed leaves of *Cajanus cajan* Linn. Phytochemical Screening shows maximum presence of Carbohydrates in Ethyl Acetate Extract, Pet. ether and ethanol extract shows less presence while water extract shows nil content of Carbohydrate. Protein and resin is present considerably in ethyl acetate and ethanol extract while petroleum ether and water extract shows little presence.

S.No	Constituent	Ethyl Acetate Extract	Petroleum ether extract	Ethanol extract	Aqueous extract
1	Alkaliods:- a) Wagner's test	+	-	+	_
2	Flavonoids	-	+	-	+
3	Resins	+	+	+	+
4	Saponins	-	+	-	+
5	Tannins	+	-	-	-
6	Carbohydrates Fehling’s test	+	+	+	_
7	Proteins test Bieuret test	+	+	+	+

Phytochemical analysis of various concentrations of *Cajanus cajan* Linn. Leaves powder, it is complete that Ethyl Acetate Extract and Ethanolic Extract are useful for further studies of Pharmacological parameters.

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