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Preliminary Phytochemical Screening of Seeds of *Phytolacca Latbenia* (Moq.) walte. A Wild Medicinal Plant of Tropical and Sub-Tropical Region of Pakistan

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Abstract

Phytolacca latbenia (Moq.) walte locally known as Luber belonging to family Phytollacaceae is used in traditional medicine system and pharmaceutical industries as well. Whole plant is medicinally important. The aim of this study was to analyze the seeds of Phytolacca latbenia (Moq.) Walte physico-chemically and phytochemically. Various bioactive compounds (alkaloids, terpenoids, favonoids, saponins, carbohydrate, proteins etc) were detected in water extract, while other solvents were not ideal for extraction few compounds were screened out from them. High extraction was done by water solvent and low value was in acetone solvent. Seeds of *Phytolacca latbenia* showed variety of therapeutic potential due to the presence of several phytochemical compounds.

Keywords: *Phytolacca latbenia;* Phytochemical; Physicochemical screening; Seeds

Introduction

Bioactive compounds plants have been used for a long time in our history both as medicine and supplement to support normal physiological functions of the body. Many compounds are added for medicinal purposes when knowledge of their function finds out [1]. Several natural compounds have been assigned to herbs. These medicinally important herbs are the primary source of healthcare and pharmaceuticals products [2]. The story of the use of plants for a medicinal purpose is likely as old as the history of human being. Traditional uses of folk medicine provide key knowledge for the extraction and development of many drugs and activity as well [3]. Extraction and characterization of numbers of bioactive compounds from green factories are a reason to manufacture some highly active drugs [4]. Plant-based secondary metabolites play basic roles in human health and food source as well [5]. Phenolic compounds have biological properties such as anticarcinogen, Antiapoptosis, anti-aging, cardiovascular protection, anti-atherosclerosis, anti-inflammation, and improvement of the endothelial function [6].

The biologically crude drug is more effective than the isolated compound because of their synergistic effects [7]. For tracking of phytochemicals in plants, a plant is taken for screening to find out the presence of several chemicals including alkaloids, flavonoids, fixed oil, glycosides, and saponins, etc. The activity of secondary metabolites in plants as defense mechanisms against predation by many microorganisms, insects, and herbivores [8]. Herbal medicines are more beneficial in the treatment of various diseases because of less side effects, safety and biocompatibility. Therefore, the public and market demand is so high. That's why many medicinal plants are facing serious threats either extinction or loss of genetic diversity [9]. Several plants show good antioxidant activity [10].

Material and Methods

Plant Collection and Authentication

Seeds and plant specimen of *Phytolacca latbenia* (Moq.) Walte were collected from Neelum valley Azad Kashmir in September 2018 and plant was identified with the help of available literature flora of Pakistan [11]. Voucher specimen was deposited at (KUH) Karachi University Herbarium, Centre for Plant Conservation, University of Karachi.

Extraction from Seeds

Extraction: Powder of *Phytolacca Latbenia* seeds (10g) was taken in 200 ml of 4 different solvents Acetone, chloroform,

methanol and water in each conical flask, and then kept on a shaker for 48 h. After 48 h, the mixture was filtered through filter paper (whattman no 1) then dried. Powder of extract was used for further tests.

Physicochemical Analysis: Extractive values, ash values, under various solvents, acid and water solubility percentage were checked as described by Esha et al. [12].

Qualitative Phytochemical Screening

Alkaloids and were analyzed by Evans method [13], proteins by Million's method [14,15]. Carbohydrates by Benedict's test [16], Phenolic compounds by Ferric chloride test [17], Lead acetate test [18], Flavonoids by [18], Glycosids by Borentrager's test [18], Fixed oil by Spot test [19], Terpenoids by [20], Saponin by Foam test [19].

Results and Discussion

Discussion

Phytolacca latbenia (Moq.) Walte found in India, China and Japan in Pakistan it is found in Hamaliya region from 1500-3000 m. Root contains a phytolaccin compound which is used in medicine and poisonous as well [11] root is customarily used as a medicine against antibacterial, antiasthmatic, antitussive, antidote, antifungal, expectorant, laxative, diuretic, and vermifuge whole plant is toxic, this remedy should be used with prudence and preferably under the supervision of a qualified practitioner [21]. The plant has fascinating chemistry useful against anti-AIDS drug and potent anti-inflammatory agents, antiviral proteins and other substances that affect cell division [22]. The leaves and twigs have a narcotic effect and used as a sedative to convince sleep. Root oil used for joint pain [23].

Table 1: Physicochemical analysis of seeds of Phytolacca latbenia (Moq.) Walte.

1	Physical State of Ash	Fine powder
2	Colour of ash	Black
3	% of loss on drying	31.60%
4	% of ash content	22.46%
5	Water soluble ash	27%
6	Water insoluble ash	73%
7	Acid soluble ash	37%
8	Acid insoluble ash	67%
9	Acetone soluble extractive value	12%
10	Chloroform soluble extractive value	6%
11	Methanol soluble extractive value	10%
12	Water soluble extractive value	40%

Seeds of *Phytolacca latbenia* (Moq.) Walte were examined physicchemically and phytochemically. Our results revealed that seeds of *Phytolacca latbenia* (Moq.) Walte is rich in various bioactive compounds when using different solvents such as acetone, chloroform, methanol, and water. The results of the phytochemical screening of *phytolacca latbeniaic seeds* shown in table 2 physicochemical results table 1. Majority of compound detected only in water extract such as alkaloid, Carbohydrates, protein, phenolic compounds, flavonoids, fixed oil, saponin and terpenoids as well. These compounds were absent in acetone, chloroform and methanol extracts In Borntrager's test glycosides was absent. The high extractive value was in water solvent 40% it was lower in chloroform solvent 6%. The ideal solvent for the extraction of seeds of *Phytolacca latbenia* (Moq.) Walte is water, in which best results were achieved [24-28] (Tables 1-2).

Table 2: Qualitative Phytochemical screening of seeds of Phytolacca latbenia in different solvent.

S.NO	Phytochemical Test	Acetone	Chloroform	Methanol	Water
1	**Alkaloid**				
	Wagner's Reagent	-	-	-	++
	Mayer's Reagent	-	-	-	++
2	**Carbohydrate**				
	Benedict's Test	+	+	+	+
3	**Protein and amino acid**				
	Biuret Test	-	-	-	-
	Millions Test	++	++	++	++
4	**Phenolic compounds**				
	Lead Acetate	+	+	+	++
	Ferric Chloride Test	+	+	+	++
5	**Flavonoids**	-	-	+	+
6	Glycoside				
	Borntrager's Test	-	-	-	-
7	**Fixed Oil**				
	Spot Test	+	+	+	+

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8	Terpenoids	+	+	+	+
9	**Saponin**				
	Foam Test	-	-	++	++

Key: += present, - = absent, ++ =present in moderate amount, +++=present in high amount.

Conclusion

Phytolacca latbenia (Moq.) Walte produce huge amount of seeds and show therapeutic potential due to the presence of various phytochemical.

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