Original Research Article

Development of Quality Control Parameter of *Datura alba*

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Abstract
Plants have been an exemplary source of medicine. *Daturaalba* is a wild weed belonging to family Solanaceae. The preliminary phytochemical investigation was performed on methanolic, acetone extract of *Datura alba* revealed the presence of alkaloids, tannins, cardiac glycosides, flavonoids, carbohydrates, amino acids and phenolic compounds, while phytochemical analysis of *Datura alba*showed that it contained alkaloids, saponins, tannins, Terpenoids, steroids, flavonoids, phenols and cardiac glycosides.

Keywords: *Datura alba*, Phytochemical, Antifertility

Introduction

The World Health Organization (WHO) estimates that 4 billion people, 80 percent of the world population, presently use herbal medicine for some aspect of primary health care [1]. Plants generally produce many secondary metabolites which were constituted an important source of many pharmaceutical drugs. Many previous reviews revealed the wide range of the pharmacological and therapeutic effects of medicinal plants [1].

Datura alba belong to family Solanaceae which is commonly known as angel's devils trumpet. *Daturaalba*is an annual herb grown up to 3ft in height[2]. It belongs to genus Datura, which consists of fifteen species. All parts of the Thorn apple have medicinal value, but only the leaves and seeds are officially used. *Datura alba* is a very well-known plant for its various medicinal activities in various parts of the world. It is widely used for the treatment of asthma, healing potential of burn wounds, muscle spasm, whooping cough, haemorrhoids and skin ulcers etc. This plant is used by the Curve's practitioners for all types of wounds[3].
Stem 1.5-1.8m high herbaceous or slightly woody below, Leaves stalked, 15-18cm. long, ovate, acuminate, repand-dentate, unequal at the base, glabrous, bright green. Flowers white or cream- coloured erect, shortly stalked. Calyx about 3.2cm. long, deeply 5-toothed; teeth triangular-lanceolate, acuminate. Corolla 11.5-12.5cm,long, 5-plicate, puberulous outside, limb obscurely 5-lobed, lobes cuspidate. Capsule globose, spreading or aculeate.[4]

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Material Method

DEVELOPMENT OF STANDARDIZATION PARAMETER

Determination of water-soluble Extractive

Macerate 5gm of the air dried drug, coarsely powdered, with 100ml of water in a closed flask for 24 hours, shaking frequently during the first 6 hours and allowing to stand for 18 hours. Thereafter, filter rapidly taking precautions against loss of ethanol, evaporate 25ml of the filtrate to dryness in a tared flat bottomed shallow dish, dry at 105ºc and weigh. Calculate the percentage of ethanol- soluble extractive with reference to the air dried drug.

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Keywords: *Datura alba*, Phytochemical, Antifertility

Ethanol-Soluble Extractive

Macerate 5gm of the air dried drug, coarsely powdered, with 100ml of ethanol of the specified strength in a closed flask for 24 hours, shaking frequently during the first 6 hours and allowing standing for 18 hours. Thereafter, filter rapidly taking precautions against loss of ethanol, evaporate 25ml of the filtrate to dryness in a tared flat-bottomed shallow dish, dry at 105ºc and weigh. Calculate the percentage of ethanol soluble extractive with reference to the air dried drug.

Determination of Ash

Weigh accurately 2 to 3gm of the air dried crude drug in a tarred platinum or silica dish and incinerate at a temperature not exceeding 450ºc until free from carbon, cool and weigh. If a carbon free ash cannot be obtained in this way, exhaust the charred mass with hot water, collect the residue on an ash less filter paper, incinerate the residue and filter paper until the ash is white or nearly so add the filtrate, evaporate to dryness and ignite at a temperature not exceeding 450ºc. Calculate the percentage of ash with reference to the air dried drug.

Determination of acid-insoluble ash
Boil the ash with 25ml of 2M hydrochloric acid for 5 minutes, collect the insoluble matter in a gooch crucible or on ash less filter paper, wash with hot water, ignite, cool in a desicators and weigh. Calculate the percentage of acid insoluble ash with reference to the air dried drug.

Determination of water- soluble ash
Boil the ash 5 minutes with 25 ml of water; collect the insoluble matter in a gooch crucible or on ash less filter paper, wash with hot water and ignite for 15 minutes at a temperature not exceeding 450ºC. Subtract the weight of the insoluble matter form the weight of the ash, the difference in weight represents the water-soluble ash. Calculate the percentage of water soluble ash with reference to the air- dried drug.

Loss on Drying
Loss on drying is the loss of weight expressed as percentage w/w resulting from water and volatile matter of any kind that can be driven off under specified conditions. The test is carried out on a well-mixed sample of the substance. If the substance is in the form of large crystals, reduce the size by rapid crushing to a powder. Weigh a glass stopper, shallow weighing bottle the same conditions to be employed in the determination. Transfer to the bottle the quantity of the sample specified in the individual monograph. Cover it and accurately weigh the bottle and the contents. Distribute the sample as evenly as practicable by gentle sidewise shaking to a depth not exceeding 10mm.
Dry the substance by placing the loaded bottle in the drying chamber as directed in the monograph, remove the stopper and leave it also in the chamber. Dry the sample to constant weight or for the specified time and at the temperature indicated in the monograph. Dry by one of the following procedures. After drying is completed, open the drying chamber, close the bottle promptly and allow it to cool to room temperature (where applicable) in a desiccators before weighing. Weigh the bottle and the contents. [5, 6]

PHYTOCHEMICAL SCREENING FOR THE EXTRACTS
All the extract of both the plants was subjected to preliminary phytochemical screening.

Test for Alkaloids

0.2g of each fraction was warmed with 2% H_2 SO for 2 min. The reaction mixture was filtered and 2-4 added a few drops of Dragendorff reagent to each filtrate. Orange red precipitate indicates presence of alkaloids.

Test for Tannins

A small quantity of each extract was mixed with water and heated on water bath and filtered.A few drops of ferric chloride were added. A dark green colour indicates tannins.

Test for Glycosides

Each extract was hydrolyzed with HCl and neutralized with NaOH solution. A few drops of Fehling solution A and B were added. Red colour indicates presence of Glycosides.

Test for Reducing Sugars
Fehling's test

Each extract were shaken with distilled water and filtered. The filtrate was boiled with few drops of Fehling solution A and B. An orange red precipitate indicates the presence of sugars.

Test for Saponins

0.2g of each extract was shaken with 5ml of distilled water and heated to boiling. Frothing (appearance of creamy miss of small bubbles) shows presence of saponins.

Test for Flavonoids
0.2g of each extract was dissolved in diluted NaOH and few drops of HCL were added. Yellow solutions that turn colourless indicate thepresence of flavonoids.

Test for Phlobatanins
0.5g of each extract was dissolved in distilled water and filtered. The filtrate was boiled with 2%HCL solution. Red precipitate indicates the presence of phlobatanins.

Test for Steroids
2ml of acetic anhydride was added to the mixture of 0.5g of each extract and H SO (2ml).The colour from violet to green in some samples indicates the presence of steroids.

Test for Terpenoids
0.2g of each extract was mixed with 2ml of chloroform and concentrated (3ml) H_2SO_4 was carefully added to form a layer. The formation of reddish brown coloration at the interface indicates the presence of terpenoids.

Test for Cardiac Glycoside
To 2ml of plant extract, 1ml of glacial acetic acid and 5% ferric chloride was added. Then few drops of concentrated H_2SO_4 were added. Presence of greenish blue colour indicates the presence of cardiac glycosides.

Test for Anthraquinones
0.5g of each extract was boiled with 10%hcl for few min. The reaction mixture were filtered and allowed to cool. Equal volume of chloroform was added to each filtrate. Few drops of 10% ammonia was added to each mixture and heated. Rose-pink colour indicates the presence of anthraquinones. [7-10]

Result

Physico-chemical constants
Moisture content
It was determined by loss on drying method. The results are shown in the table 1.

Table 1: Moisture content of *Datura alba* seeds

Plant	FreshWeight (gm)	Moisture content (%)
Datura alba	**5.00**	5.8

Ash value
Different Ash values were determined and shown in Table 2.

Table 2: Ash value of *Datura alba* seeds

S. No.	Parameters	Values
1	Water soluble ash	3.2 % w/w
2	Water insoluble ash	2.7 %w/w
3	Total ash value	5.7 % w/w
4	Acid insoluble ash	4 %w/w

Phytochemical screening

The results of phytochemical screening are summarized in table 3 and among the different extracts of the plants revealed the presence of maximum number of constituents. The results obtained of phytochemical screening of *Daturaalba*is presented in Table. Acetone crude extracts showed positive test for alkaloids, Terpenoids, flavonoids, saponins, tannins, cardiac glycosides, Phenol, but Phlobatanins, glycosides, reducing sugar and Anthraquinones are absent. Methanol crude extracts shows the presence of alkaloids,terpenoids, flavonoids, saponins, tannins, reducing sugar, steroids and cardiac glycosides but Phlobatanins, glycosides, and Anthraquinones were absent.

Table 3: Phytochemical Screening of *Datura alba*

Chemical components	Acetone	Methanol
Alkaloids	+	+
Terpenoids	+	+
Flavonoids	+	+
Anthraquinones	-	-
Tannins	+	+
Phlobatanins	-	-
Saponins	+	+
Glycosides	-	-
Reducing sugars	-	+
Steroids	+	+
Cardiac glycosides	+	+
Phenol	+	+

Key words: present: +, absent: -

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