

Pharmacognostic Evaluation of *Urginea Indica* (Liliaceae)

Kumari Nitu Singh

ARTICLE DETAILS

Article History

Published Online: 07 September 2018

Keywords

Urginea indica, pharmacognosy bulb, macroscopy, microscopy

ABSTRACT

Urginea indica Kunth (LILIACEAE) is a medicinal herb, with bulbous stem and contractile root stock. Its bulb is used as diuretic, emetic, expectorant, cathartic and anticancer agent. It involves various pharmacognostic parameters such as macroscopy, microscopy, powder study, phytochemical analysis and preliminary phytochemical screening.

1. Introduction

The bulb of *Urginea indica* forms a prime cardio-tonic activity and also found to possess anticancer, expectorant, diuretic, deostruent, emetic and anti-bacterial activities (Rathabal *et al*, 2012; Kapoor LD, 2005; Kar A, 2003; Anonymous 1991; Gokhale SB, 1979, Mukherjee PK, 2002)

2. Materials and methods

Urginea indica appears with the first rain during the month of July and August in the fallow fields of our area. The bulb of this plant was collected and preserved in F.A.A. solution. Infusion (= powder) was made from remaining bulbs. The complete systematic pharmacognostic study of drug involved macroscopy, microscopy, powder study, determination of ash value, extractive value, preliminary phytochemical screening and fluorescence analysis. It was done using standard methodology (Trease GE *et al*, 2002; Anonymous, 2001; Khandelwal, 1996; Willis TE, 1984; Brain KR, 1975; Harborne JB, 1973; Kokoski *et al*, 1958 Chase CR *et al*, 1949).

Microscopy :

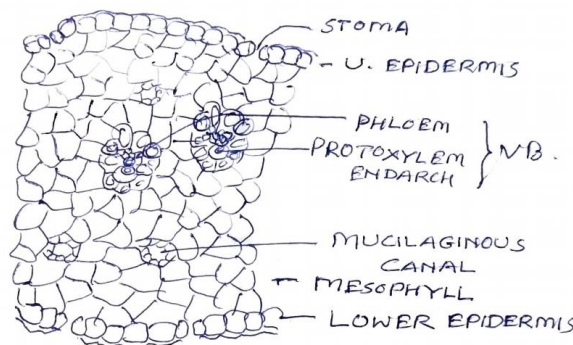
Morphological parameter	<i>Urginea indica</i> bulb scale
Size	2.5 X 2.0 cm
Shape	Rhomboid
Outer surface	Dark brown
Inner surface	Yellowish white
Taste	Bitter
Odour	Pungent

Microscopy :

Bulb T.S. : Comment

- The outermost layer gets distinguished into upper and lower epidermis.
- The epidermal layers are provided with thick cuticle lining.
- The epidermal layers are provided with distantly placed circular stomatal pores.
- Mesophyll between the two epidermal layers are made up of large sized, polyhedral parenchymatous ground tissue with isolated mucilaginous canals.
- Bundles of acicular calcium oxalate crystals are present along with starch grains.
- The vascular bundles are scattered in well-developed mesophyll.

- Each vascular bundle is collateral, conjoint, closed and endarch.



T.S. OF *Urginea* bulb.

• Powder drug :

- The powdered samples showed acicular calcium oxalate crystals, starch grains and few fibres with tapering ends.
- Physicochemical evaluation :

Table : showing physicochemical analysis :

Ash values	Total ash	27 %
	Acid insoluble ash	0.5 %
	water soluble ash	10 %
Extractive values	Alcohol	24 %
	Water	10 %
	Chloroform	16 %

- Preliminary phytochemical Seneening

Table : Showing results

Test for phytoconstituents	WE	CE	AE
Alkaloids	+	+	+
Tannins	-	-	-
Sugars	+	+	+
Proteins	-	-	-
Amino acids	-	-	-
Cardiac Glycosides	+	+	+
Mucilage	+	+	+
Saponins	-	-	-
Starch	+	+	+
Steroids	-	-	-

Sterols	+	+	+
Flavanoids	-	NA	NA
Terpenoids	NA	+	NA

Abbreviations :

WE = Water extract

CE = Chloroform extract

AE = Alcohol extract

NA = Not applicable

3. Results and discussions

Preliminary phytochemical investigation gives the general idea of chemical composition of the crude drug. In crude drug market, morphological characteristics help in identifying the plant drug in whole form while microscopy is essential in confirming the authenticity in broken form of drug. Physicochemical constants like ash values, extractive values along with powder study become useful to prove genuity of the powdered drug as these are very specific characteristics.

References

- Rathabai V, Bhaskaran C, Shivmani, 2012. Phytochemical analysis and *in vitro* antimicrobial activity of *Urginea indica*. Journ. Pharmacognosy and herbal formulation 2 (10) : 6 – 12.
- Kapur LD, 2005. Handbook of Ayurvedic Medicinal Plants. Boca Raton; CRC publication pp. 328.
- Kar A, 2003. Pharmacognosy and pharmacobiotechnology. New Delhi; New age international publishers. pp. 176.
- Anonymous, 1991. The Wealth of India (Raw Materials) Vol. IX and X New Delhi, CSIR, 256-257; 416-418.
- Gokhale SB 1979. Textbook of Pharmacognosy, Pune, Nivali Prakashan.
- Miller LG, Pharm D, Wallace BCPs, Murray PhD; 2005. Herbal Medicines. New Books Ltd. 312.
- Dewick PM, 2001. Medicinal natural products UK : Wiley Publication 252.
- Qadry IS, Shah CS, 1990. Textbook of Pharmacognosy, Ahmedabad; B.S. Shah Prakashan, 74 - 78.
- Mukherjee PK, 2002. Quality control of Herbal Drugs - An approach to evaluation of Botanicals. New Delhi; Business Horizons Pharmaceutical Publishers.
- Trease GE, Evans WC, 2002. Pharmacognosy 15th edition. Edinburgh London; Harcourt brace Co Asia Pvt. Ltd., WB Saunders Company Ltd.
- Anonymous 2001: The Ayurvedic Pharmacopoeia of India. Ministry of Health and family Welfare. Vol. I, New Delhi.
- Khandelewal KR, 1998. Practical Pharmacognosy 5th ed. Pune; Nirali Prakashan.
- Willis TE, 1984. Practical pharmacognosy - 5th. ed. London; J. and A Churchill Ltd.
- Brain KR, Turner TD, 1975. Practical evaluation of Phytopharmaceuticals Bristol, Wright Scientifica.
- Harborne, JB, 1973. Phytochemical Methods, Chapman and Hall International Edition, Toppan Company Ltd.
- Kokoski CJ, Kokoski RJ, Salma FJ., 1958. Fluorescence of vegetable Powdered drugs under UV-radiation. Journ. Amer. Pharm. Association XLVII (10) 715-717.
- Chase CR (Jr.), Pratt R, 1949. Fluorescence of powdered vegetable Drugs with particular Reference to Development of a system of identification Journ - Amer Pharm. Association (Sc. ed.) 38: 324–331.