

Physico-chemical and phytochemical analysis of *Stellaria media* L.

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Abstract

Stellaria media Linn. (Caryophyllaceae) has been traditionally used for a variety of ailments such as inflammation, asthma, blood diseases and in the treatment of mental tension. In the present investigation, various pharmacognostic standards of the plant have been generated so that authentic *S. media* could be explored for its traditional claims. Total ash, acid insoluble ash, ethanol soluble extractive and water soluble extractive values were 11.24, 2.04, 6.3, 37.7 % w/w respectively.

Keywords: Phytochemical studies, Phytochemical analysis, Standardization, *Stellaria media*

1. Introduction

There are a number of crude drugs where the plant source has not yet been scientifically identified. Hence pharmacognostic study gives the scientific information regarding the authenticity, quality and purity of the plant drugs (Dhanabal, *et al.* 2005) [1]. *Stellaria media* Linn. (Caryophyllaceae) is well known as an invasive weed in gardens, fields and grounds in the world (Shan, *et al.* 2010) [2]. The plant is reported to be useful in inflammations of the digestive, renal, respiratory and reproductive tracts. The plant is employed in plasters used for broken bones and swellings (Anonymous, 1976) [3]. It also possesses diuretic, expectorant and anti-asthmatic properties (Pandey, *et al.* 1995) [4]. Some phenolic acids, flavones (Kitanov, 1992) [5], fatty esters (Pandey, *et al.* 1995) [4] and gypsogenin (Hodisan and Sancaian, 1989) [6] have been reported from this species. The objective of the present study was to establish various pharmacognostic standards and to evaluate

preliminary phytochemical and physico-chemical parameters that can facilitate identification and assist in the preparation of monograph of the plant.

2. Material and Methods

Collection and authentication of plant material

S. media was collected from the campus of Govt. Girls P.G. College, Rewa (M.P.). Identity of the plant was confirmed through Kirtikar & Basu (2006) [7]. The fresh as well as shade dried powdered plant material was subjected to Physicochemical and phytochemical studies.

3. Observation and Discussion

Physico-chemical standards

Ash values viz., total ash, acid insoluble ash, and extractive values viz., alcohol soluble and water soluble extractive values were calculated (Table 1).

Table 1: Physico-chemical parameters of *Stellaria media*

S. No.	Parameter	Mean value * (% w/w)
1.	Total ash	11.24
2.	Acid insoluble ash	2.04
3.	Ethanol soluble extractive	6.30
4.	Water soluble extractive	37.70

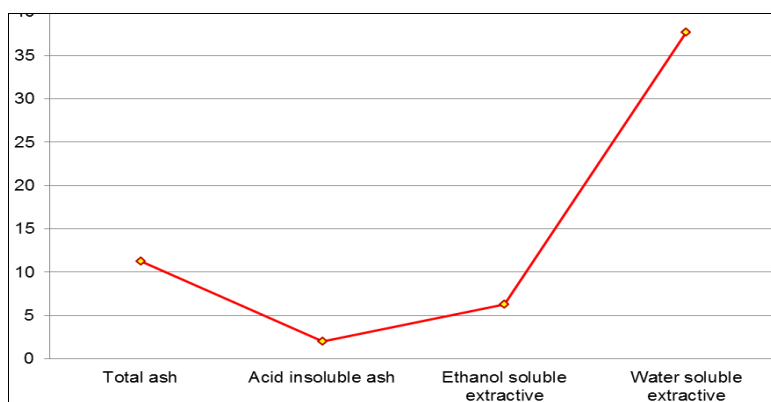


Fig 1: Graphics analysis of Physico-chemical parameters of *Stellaria media* [Mean value *(%w/w)]

Phytochemical screening

The results of all the four extracts subjected to qualitative chemical tests were recorded (Table 2).

Table 2: Phytochemical analysis of extracts of *Stellaria media*

S. No.	Class of Phytoconstituents	Petroleum ether extract	Chloroform extract	Methanol extract	Water extract
1.	Alkaloids	-	-	-	-
2.	Anthracene glycosides	-	-	-	-
3.	Cardiac glycosides	-	-	-	-
4.	Steroids	+	+	-	-
5.	Saponins	-	-	-	+
6.	Flavonoids	-	+	+	-
7.	Tannins	-	+	+	-
8.	Carbohydrates	-	-	+	+
9.	Proteins	-	-	+	+
10.	Fixed oils/fats	+	-	-	-

(+): indicates presence; (-): indicates absence

4. Conclusion

The information generated regarding various Pharmacognostic parameters and phytoconstituents of *Stellaria media* shall be very useful to ascertain the identity and to determine the quality and purity of the plant material in future studies.

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6. References

1. Dhanabal SP, Suresh B, Sheeja E, Edwin E. *Indian J. Nat. Prod.* 2005; 21(1):9-11.
2. Shan Y, Zhou J, Zhao HG, Feng X, Dong Y, Xia B. *Chem. Nat. Compd.* 2010; 46(4):667-668.
3. Anonymous, *The Wealth of India, Raw Materials*, Publications and Information Directorate, CSIR, New Delhi, 1976, 10.
4. Pande A, Shukla YN, Tripathi AK. *Phytochemistry*, 1995; 39(3):709-711.
5. Kitanov G. *Pharmazie*, 1992; 47(6):470-471.
6. Hodisan V, Sanraian A. *Farmacia*, 1989; 37(2):105-109.
7. Kirtikar KR, Basu BD. *Indian Medicinal Plants*, International Book Distributors, Dehradun, 2006; 2:939.