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SCREENING OF TLC ACCOUNT OF ROOT EXTRACT OF PLANT ASPARAGUS RACEMOSUS

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ABSTRACT

One of the very powerful Ayurvedic drug is *Asparagus racemosus* wild. which is generally known as Shatavari belongs to both families Liliaceae and Asperagaceae. As health tonic and in various ailments it's juice and paste is used. To identify the bioactive compounds of the extract Thin layer chromatography(TLC) was performed for Methanolic extract. With the largest discriminating power the most suitable TLC system for analysis of the extract was found in chloroform: methanol in this study. With UV lights at 254nm derivatization of TLC plates was done. Corresponding Rf values were determine and different bands were observed. With Rf = Distance travelled by the solute (in cm)/Distance travelled by the solvent front (in cm).

Key words: *Asparagus racemosus, Asperagaceae, Methanol extract, TLC, Chromatography.*

I. INTRODUCTION

India has a rich medicinal plant flora of some 2500 species of which at least 150 species are used commercially on a fairly large scale. Asparagus racemosus is also one of the commonly used medicinally important herbs. Asparagus racemosus (Liliaceae) commonly called as Shatavari is an herb growing widely throughout India. Asparagus racemosus is a perenial climber with fasciled finger-like clustered tuberous roots producing cupious amount of small spinescent pine-like leaves. It bears tiny white flower in small spike forming sub globose berries containing black seeds during autumn season[1]. *Asparagus racemosus* Wild. is belonging to both Liliaceae and Asparagaceae plant families[2]. In Ayurveda, this amazing herb is known as the "Queen of herbs", because it promotes love and devotion[3]. It is an important monocot medicinal plant which is distributed in tropical and subtropical forest and in central parts of India[4]. Its medicinal usage has been reported in the Indian and British Pharmacopoeias and in traditional systems of medicine such as Ayurveda, Unani and Siddha[5]. The ethanolic plant extracts of *Asparagus racemosus* and their partitionates were assessed for thrombolytic, membrane stabilizing, antimicrobial and antioxidant activity *in vitro*[6]. *Asparagus racemosus* (Shatavari) is widely used in Kerala, for the treatment of urinary tract infection (UTI) both by the rural folks and by traditional doctors[7]. Traditionally, the plant has been used for its phytoestrogenic properties. It has been considered to be a lactogogue in lactational inadequacy[8] and useful to decrease post-operative adhesions and it also have anticandidal activity[9]. The other common uses of the plant are for the treatment of diarrhea, dysentery, rheumatism, nervous breakdown, and is thought to be an aphrodisiac[10].

II. MATERIAL AND METHOD

The month of July 2017 Nature nursery, Pipliyapala, Choithram square, Dist. Indore (M.P.), India. The roots of Asparagus racemosus were collected and from the Dept. of botany PMB Gujarati science college, Indore identified and authenticated. The collected roots were washed and cleaned under the running water of tap. The roots were dried under the shade of room temperature for 6-7 days and after drying the roots were cut into small pieces and grinded. Thus the root powder was obtained.

Preparation of Extract:

In a stainless steel extraction tank with methanol the powdered plant material was extracted for 4 days at the room temperature by changing methanol daily. To yield the dry crude extract the combined extract was filtered and evaporated to dryness under reduced pressure and for the further use a sample was stored in a vacuum desiccators.

TLC profile:

TLC is one of several techniques useful for the identification of phytochemical compounds[11-12].

On precoated 20x20cm and 0.25mm thick plates the TLC was performed in this work. For TLC by using silica gel-G the plates were prepared and left for overnight for air drying. For 1 hour at 100^0c these plates were activated with hot air oven. On TLC plates cold alcoholic extract was plotted on TLC plates. In the ratio 3:7 of chloroform and methanol. The plates were dried and developed in suitable solvents for screening rapidly and then the plates were dried at room temperature after being run in the above solvent system with UV light at 254 nm derivatisation of TLC plates was done. Thus in the work corresponding Rf values were determined and different bands were observed. The each spot Rf value was calculated as:

Rf = Distance travelled by the solute (in cm)/Distance travelled by the solvent front (in cm)

For the identification of the spots/Bands the plates were visualised under white and UV lights. Thus this experiment was performed thrice and in the result each data point was found in the average of the replicate tests.

III. RESULT AND DISCUSSION

In order to identify the bioactive compounds methanolic extract was subjected to TLC. The most suitable TLC system for analysis was shown to be chloroform: methanol with the largest discriminating power in the present study. With the Rf values of 0.50, 0.51 and 0.56 the different bands were found.

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REFERENCES

1. *Phytochemical investigation of selected medicinal plants of India. Cen Cou Res in Ayur and Sid. New Delhi., 43-46 (1992).*
2. *Madhavan V, Tijare RD, Mythreyi R, Gurudeva MR, Yoganarasimhan SN. Pharmacognostical studies on the root tubers of Asparagus gonoclados Baker - Alternate source for the Ayurvedic drug Satavari. Indian J Nature Resour., 1(1): 57-62 (2010).*
3. *Shashi Alok and Sanjay Kumar Jain. Plant profile, phytochemistry and pharmacology of Asparagus racemosus (Shatavari). A review Asian Pacific Journal of Tropical Disease., 3(3): 242-251 (2013).*
4. *Patel L S and Patel R S. Preliminary phytochemical analysis of root extracts of Asparagus sracemosus Willd. Life Sciences Leaflets., 5: 72-77 (2013).*
5. *Mishra J N and Verma N K Asparagus racemosus: Chemical Constituents and Pharmacological Activities- A Reviw European Journal of Biomedical and Pharmaceutical sciences., 4(6), 207-213 (2017).*
6. *Karim S, Islam Md. S, Tasnim Z, Laboni F R, Julie A S and Labu Z K Justification of Traditional Uses of Asparagus Racemosus (Shatavari) Research article- A Miracle Herb The Open Bioactive Compounds Journal., 5, 9-15(2017).*
7. *Jose J, Devassykutty D. Evaluation of antibacterial activity of Asparagus racemosus in urinary tract infection. Natl J Physiol Pharm Pharmacol., 6(6):596-598 (2016).*

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Impact Factor- 5.070

8. *Sharma S, Ramji S, Kumari S, Bapna JS. Randomized control trial of A. system in islets of Langerhans and its role in the control of insulin release. Diabetologia racemosus (Shatavari) as a lactogogue in lational inadequacy. Indian Pediatrics., 32: 675-677 (1996).*
9. *Uma B, Prabhakar K, Rajendran S. Anticandidal activity of Asparagus racemosus. Ind. J. of Pharm. Sci., 71(3): 64-71 (2009).*
10. *Nandkarni AK. Indian Materia Medica. Bombay: Popular Prakashan., 151-155 (1976).*
11. *Uematsu Y, Hirata K, Suzuki K, Iida K, Kamata K. Investigation of spectrophotometrically determined substances in Yucca extracts by GC/MS, TLC and oncolumn injection GC. J. Food Hyg. Soc. Japan., 45: 141-145 (2004)*
12. *Zhao L, Huang C, Shan Z, Xiang B, Mei L. Fingerprint analysis of Psoralea corylifolia L. by HPLC and LC-MS. J. Chromatogr B Analyst Technol Biomed Life Sci B821., 67-74 (2005).*