

**INTERNATIONAL JOURNAL OF ADVANCES IN PHARMACY,
BIOLOGY AND CHEMISTRY****Research Article****Standardisaztion of *Cissampelos Pareira*****by HPTLC Finger Print Analysis****Sadhis Kumar¹ and B. Samuel Thavmani²**¹Glenmark Generics Ltd., Mumbai, Maharashtra, India.²PSG College of Pharmacy, Peelamedu, Coimbatore, Tamilnadu, India.**ABSTRACT**

Standardization of the medicinal plants by High Performance Thin Layer Chromatography is one of the recommended methods for quality control of herbs. In this paper *Cissampelos pareira* a medicinal plant which has wide spread application in various systems of medicine is subjected to HPTLC finger print analysis by various mobile phases. The methanolic extract of *Cissampelos pareira* in the mobile phase of composition Toluene, ethyl acetate and formic acid (8:2:0.1) gives a good fingerprint pattern. This analytical procedure can be adapted for all the plants before and after the formulation. Also such an analysis can be utilized in identifying *Cissampelos pareira* and in differentiating it from other species which are similar to it or are used as adulterants / substitutes.

Keywords: *Cissampelos pareira*, standardization, HPTLC, Fingerprint analysis.

INTRODUCTION

The traditional knowledge about most of the medicinal plants was in oral form of knowledge and it is slowly getting vanished or eroded due to cultural adaptations. There is no unique or standard procedures for maintaining the quality of the drug in terms of the phyto-constituents present in it. In spite of this many medicinal plants and plant based products finds a place in various systems of medicine. Therefore it is essential that such useful medicinal plants should be documented and studied for systematic regulation. With this intention in this present paper *Cissampelos pareira* a medicinal plant is subjected to HPTLC fingerprint analysis.

Cissampelos pareira is a species of flowering plant belonging to Menispermaceae family. It is known as abuta and is also called *laghu patha* in Ayurvedic medicine. It is widely used in tribal medicine for the treatment of asthma, dysentery, diuretic, anti-inflammatory, anti-arthritis, anti-fertility etc (Amresh, 2007a,b; Mausumi et al., 2007) It is reported to have alkaloids, flavanoids and pectins as chief phytoconstituents (Hiroshi Morita et al., 1993a,b,1995; Morris Kupchan, et al., 2006)

MATERIALS AND METHODS

35g of the air dried powder was subjected to hot continuous extraction using Soxhlet apparatus for 5 days (Sekar et al., 1999). The resulting solution was concentrated under vacuum and re-dissolved in methanol for further HPTLC analysis. The sample solutions were applied band wise by means of Linomat V applicator (CAMAG, Muttenz, Switzerland) on a commercial 10 cm × 10 cm pre-coated HPTLC Silica gel 60-plate (Merck). The application conditions were: carrier gas, nitrogen; syringe delivery speed, 10 s/μL; application volume, 10 μL; bandwidth, 8 mm; space between two bands, 5 mm; distance from bottom, 10 mm. Fifteen milliliters of mobile phase consisting of Toluene, ethyl acetate and formic acid in the ratio of 8:2:0.1 v/v/v was added into a twin-trough chamber, to saturate it for 15 min. The plate in the chamber was developed upward over a path of 8 cm The fluorescent image was examined under UV 365 nm by using a UV viewer cabinet (CAMAG). They were captured with a Digistore 2 documentation system (CAMAG). The excitation wavelength was 366 nm in reflection mode and the exposure time was 3 s. (Run-tao et al., 2009, Peishan et al., 2006)

RESULTS AND DISCUSSION

The HPTLC fingerprint profile of the methanolic extract showed the presence of 10 major peaks at the Rf values of 0.2, 0.28, 0.31, 0.39, 0.45, 0.50, 0.64, 0.70, 0.76, 0.96. (Fig. No. 1). Any herbal formulations which involve any number of medicinal plants must be subjected to such analysis and checked with the standard finger print which is kept as our in-house specification. Addition or

deletion of any peaks indicates the adulteration of the drug material.

CONCLUSION

Since there are number of species which closely resemble each other, it will be a difficult task for the identification of the exact species which is of medicinal value. Hence this study will be helpful for the proper selection of plants in a scientific way.

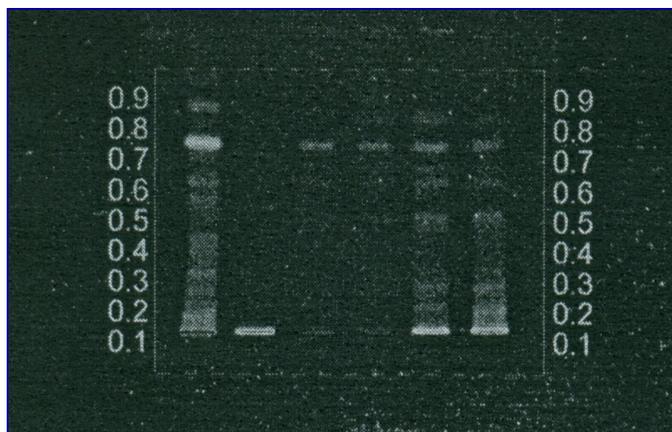


Fig. 1: Chromatogram of methanolic extract

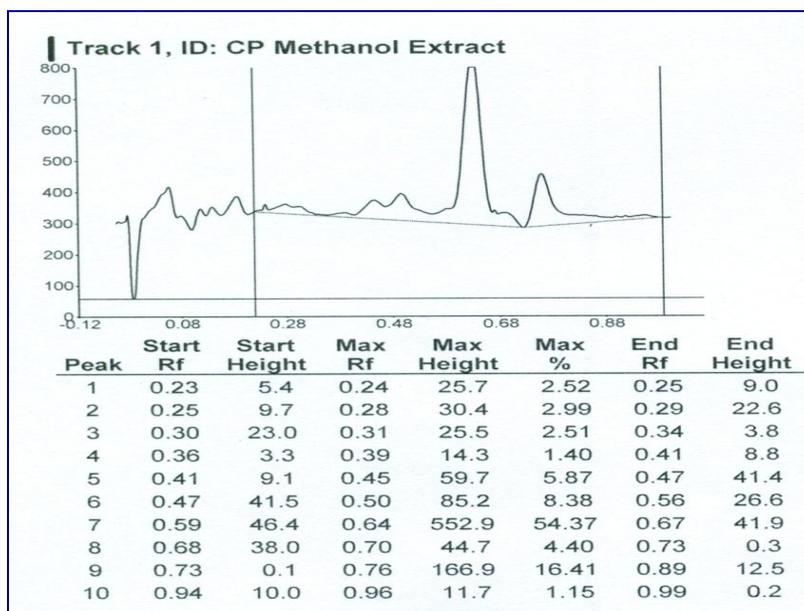


Fig. 2: Finger print analysis of methanolic extract of *Cissampelos pareira*

REFERENCES

1. Amresh G, Reddy GD, Rao Ch V and Singh PN. Evaluation of anti-inflammatory activity of *Cissampelos pareira* root in rats, Journal of Ethnopharmacology. 2007;110:526-531.
2. Amresh G, Singh PN and Rao ChV. Antinociceptive and antiarthritic activity of *Cissampelos pareira* roots. Journal of Ethnopharmacology. 2007;111(3):531-536.

3. Hiroshi Morita, Kouji Matsumoto, Koichi Takeya and Hideji Itokawa. Azafluoranthene Alkaloids from *Cissampelos pareira*. Chem Pharm Bull. 1993; 41(7): 1307-1308.
4. Hiroshi Morita, Koichi Takeya and Hideji Itokawa. A novel condensed tropane-isoquinoline alkaloid, pareitropane, from *Cissampelos pareira*. Bioorganic and Medicinal chemistry Letters. 1995;5(6):597-598.
5. Hiroshi Morita, Kouji Matsumoto, Koichi Takeya, Hideji Itokawa and Yoichi Itaka. A novel Antileukemic Tropoloisoquinoline Alkaloid, Pareirubrine, from *Cissampelos pareira*. Chemistry letters. 1993;22(2):339-342.
6. Mausumi Ganguly, Mridul KR Borthakur, Nirada Devi and Rita Mahanta. Antifertility activity of the methanolic leaf extract of *Cissampelos pareira* in female albino mice. Journal of Ethnopharmacology. 2007;111:688-691.
7. Morris Kupchan and Patel AC, Eiichi Fujita. Tumour inhibitors VI. Cissampareine, new cytotoxic alkaloid from *Cissampelos pareira*. Cytotoxicity of bisbenzylisoquinoline alkaloids. Journal of Pharmaceutical Sciences. 2006;54(4): 580-583.
8. Peishan Xie, Sibao Chen, Yi-zeng Liang, Xianghong Wang, Runtao Tian and Roy Upton, Chromatographic fingerprint analysis – a rational approach for quality assessment of traditional Chinese herbal medicine. 2006;1112 (1-2):171-180.
9. Run-Tao and Pei-Shan Xie. He-ping Liu, Evaluation of traditional Chinese herbal medicine: Chaihu (*Bupleuri Radix*) by both high-performance liquid chromatographic and high-performance thin-layer chromatographic fingerprint and chemometric analysis. Journal of Chromatography A. 2009;1216:2150-2155.
10. Sekar T and Francis K. A preliminary investigation of some maruthamalai forest plants for phytochemical compounds. Bioresource Technology. 1999;70:303-304.