

## CYCLEA PELTATA DIELS – A POSSIBLE SUBSTITUTE FOR CISSAMPELOS PAREIRA LINN

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**ABSTRACT:** *Chromatographic studies have been carried out on cyclea peltata Diels and Cissampelos pareira Linn. The results substantiate that cyclea peltata Diels can be substituted for cissampelos pareira in ayurvedic formulations.*

### INTRODUCTION

According to the Ayurvedic Pharmacopoeia of India published by Government of India, Ministry of Health and Family Welfare (1986)<sup>1</sup> Patha consists of roots of cissampelos pareira Linn. (Family Menispermaceae); an extensively spreading glabrous to softy pubescent perennial climbing shrub with nodose stem common in warm and dry regions of tropical and sub tropical parts of India upto an altitude of about 1500m But according to the pharmacognosy of Ayurvedic drugs of Travancore-cochin published by central research institute, trivandram (1951)<sup>2</sup> Cyclea Peltata Diels is named in Malayalam as Pata and Patakizhangu and in Hindi as Patha and Patha and it also comes under the family Menispermaceae. The plant is very common in the west coast of India, where it grows wild in almost all uncultivated places, mainly under mesophytic conditions from sea-level to about 3000 feet.

Cyclea peltata Diels is a much branched straggling, glabrescent or slightly hairy twiner, with a long perennial underground tuberous root and dark green foliage almost completely covering the support. The stems and branches which twine anticlockwise may reach a maximum thickness of about a

quarter of an inch they are strong, cord like dark green to ash grey with ten to fifteen or more faint spiral longitudinal striations or ridges and are normally devoid of prominent nodes, knots or lenticel eruptions, the surface especially along the edges of the ridges or ribs is sparsely covered with short stiff slightly curved hairs.

The primary root which develops into a tuber is fairly long, cylindrical unbranched and uniformly thick and straight when young but becomes crooked and irregularly bent as it gets older, the tubers vary in size from six inches to two and a half feet or more in length and from a quarter to about two inches in thickness.

The outer skin is fairly smooth and very thin, usually of a slate-grey or light brown tint and without prominent lenticels In fresh roots it is so soft that it could be easily scraped, but being very thin it could not be easily peeled nor would it peel off by itself, It is generally devoid of prominent fissures furrows or corrugations though in older and stouter roots thin short vertical slits or cracks are often noticeable. These however do not tend to make the surface rough. The greater part of the tuber is fairly fleshy or succulent and starchy glabrescent with ash

coloured or light brown wrinkled bark and thickened nodes.

The main root is perennial, deep growing and seldom branched. Generally it is long, narrow, cylindrical to fusiform more or less tortuous and slightly hard and woody. But variations ranging from thin or even stringy crooked woody types almost black in colour to fairly thick tuberous brownish forms are noticeable. The portions of the root found close to the base of the shoot system, which is the most easily obtainable part, is usually narrow and woody. The deeper parts are generally more fleshy and tuberous and often obtain much larger size.

In the dried root, the skin or outer bark is brownish to dark grey, thin corky and slightly friable, the corky layer is fairly thick when compared with the total thickness of the root the surface is usually covered with numerous minute pits and long wavy vertical branched fissures or cracks suggestive of a worm eaten or corroded appearance, Older and thicker tubers are longitudinally ridged or wrinkled and have a grayish –brown surface skin with deep short transverse cracks at distant intervals.

Fresh roots do not have any odour but dried samples when bruised emit a faint aroma, both fresh and dry roots are very bitter, though the latter is feebly sweetish at first. The roots are somewhat starch but not usually succulent. They dry up quickly but do not shrink much in storage because of the presence of thick corky outer bark and the larger proportion of wood tissue.

*Cissampelos pareira* Linn commonly known as malatannt in Malayalam is a fairly common plant of the warm dry mesophytic regions of tropical and sub-tropical India, from sealevel to an elevation of about 5000 feet but not found in very arid regions. Its

range extends from the sub-Himalayan tract Sind and the Indus Basin southwards to south kerala and Ceylon.

*Cissampelos pareira* Linn is an extensively spreading glabrous to softly grey pubescent perennial twiner with stout nodose stems upto half an inch in thickness from which arise seasonally or periodically a number of strong woody terete spirally striated whipcorp like branches covered with light brownish or greenish brown skin bearing alternate long stalked, membranous to somewhat leathery orbicular reniform leaves and small inconspicuous greenish yellow flowers.

The colour texture and degree of pubescence of the shoots are closely related to the nature of the habitat, In plants growing in the mesophytic plains the leaves are glabrous, membranous and bright green where as in those from dry or elevated regions the leaves are thicker softly pubescent or even villous and greyish-green. The stems and branches of the tender shoots are often densely downy and pale grayish very rarely glabrous and glossy green. The older stems and branches are generally glabrescent with ash coloured or light brown wrinkled bark and thickened nodes.

The dried tubers contain total alkaloids (1.8%) starch (29.9%) ash (8.3). There is a preponderant proportion of bebeerines in the total alkaloid content. The ash contains iron manganese, calcium and sodium in varying proportions<sup>3</sup>.

## MATERIALS AND METHODS

Ghee solubles of *Cissampelos pareira* Linn and *Cyclea peltata* Diels were taken and dissolved in petroleum-ether. Thin layer chromatographic studies were carried out using silica gel G plate activated at 100°C

for 40 mins. The solvent system used was n-butanol, acetic acid, water in the ratio 6:2:2. The plates were viewed in a U.V lamp with radiation aperture 140 nm (Emission 300 nm and range 3200-4000 ÅV).

The spraying reagent used was Dragendorff's Reagent.

Solution (A): 0.85 gm of basic bismuth nitrate was dissolved in a mixture of 10 ml acetic acid and 40 ml of water.

Solution B: 8 gm of potassium iodide was dissolved in 29ml of water

Stock solution: Equal volumes of A and B were mixed.

Dragendorff's reagent

1 ml of Stock solution was mixed with 2 ml of acetic acid and 10 ml of water.

## RESULTS AND DISCUSSION

Fluorescent spots with same Rf values were obtained in ghee solubles of *Cyclea peltata* diels and ghee solubles of *cissampelos pareira* Linn. The same spots on spraying

with Dragendorff's reagent and heating at 100°C turned red showing the presence of alkaloids, the results are shown in table 1.

This chromatographic study proves the fact that *cyclea peltata* can be substituted for *cissampelos pareira* according to the availability, in ayurvedic formulations.

**Table I**

S.No	Sample spotted	Rf Value observed in U.V	Rf value after spraying with Dragendorff's reagent
1	Ghee solubles of <i>cyclea peltata</i>	0.26	0.26
2	Ghee solubles of <i>cissampelos pareira</i>	0.26	0.26

## REFERENCES:

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