



## A PETRIFIED UNISEXUAL FEMALE FLOWER FROM THE DECCAN INTERTRAPPEAN BEDS OF AMANGANJ M.P., INDIA

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### Abstract:

The paper deals with the report of unisexual flower from the Deccan Intertrappean beds of Amanganj, district Panna in Madhya Pradesh. The flower is characterized with dicotyledonous, monochlamydous sessile, unisexual, hypogynous, and actinomorphic with pentalocular ovary showing axile placentation, perianth tubular with hair. These characters suggest its affinity with menispermaceae family and named as *Menispermaceopushpamamanganjigen. etsp.nov*

**Keywords:** Menispermaceae, Deccan Intertrappean beds, Amanganj

### Introduction

The presence of petrified flower from the Deccan Intertrappean series is very interesting in the history of angiosperm, because the occurrence of petrified flower is a rarity. This new flower from new locality Amanganj again proves the importance of Deccan Intertrappean beds in India. The present specimen was very well preserved showing detailed internal structures.

So far, number of bisexual flowers have been described from these series which includes the first flower *Sahnianthusparijae* (Shukla 1944), in 1948 Shukla reported a new petrified flower from Mohgaonkalan under the generic name *Sahnipushpam* and the detailed description was given by Uttam Prakashin 1956, under the name *S.glandulosum* and J.K.Verma in 1956 under the name *S.shuklai*. These workers described the same flower unknowingly.

*Sahnianthusparijae* was also further reinvestigated by Chitale in 1950 and 1955. In addition to the above reported flowers number of bisexual flowers has been described from these series but the report of unisexual flowers is a rarity, only unisexual female flower reported is *Flosheminaintertrappea* (Kareta 2003) from Deccan Intertrappean beds of Mohgaonkalan, M.P., India.

The present flower reported from new locality Amanganj, M.P., though shows similarities with some previously described fossil flowers but, it has some peculiar characters not observed in any one of the reported flowers.

### Material and method

A piece of chert embodying the minute flower was collected from the Deccan Intertrappean beds of Amanganj of Panna district Madhya Pradesh. The material has been studied by preparing thin peel sections for anatomical details. Camera Lucida sketches of

the series and the anatomical details were drawn.

### Description

Flower measures about 1mm in length and 0.5mm breadth. The petrified flower is monochlamydous, sessile, ebracteate, actinomorphic, and unisexual with presence of few hairs on perianth. Ovary superior, five locular, ovules numerous in the axile placentation and funicles are seen. (Plate I Fig. 1-3).

The flower is broad at the base and narrowing in apical region. Perianth is tubular, actinomorphic and is not irregular or gibbous. It consists of 5-united member in one whorl. The wall measures about 0.3mm. It is covered by an epidermis on both sides, made up of squarish cells filled with dark unknown contents followed by loosely arranged parenchymatous cells which are oval to elliptical in shape. The presence of dark unknown contents in the perianth cells probably implies the presence of pigment hence it might have been petaloid in nature. (Plate I Fig. 1-4).

The ovary is sessile, globular structure with style and peculiar tetrafid stigma, broad at the base and tapers to form a short style. It measures 1.2 mm across its diameter. In the transverse section the ovary wall appears angular with distinct five locules hence it is pentalocular with axile placentation. There are two to many ovules in each locule. The ovary is in young condition. This is indicated by the presence of funicular out growth, stalk like structure from the placenta enlarging at its tip to form an ovule. The ovules are amphitropous in nature. The style is uniform in length and breadth and ends in tetrafid, curved stigma, this condition might be for pollination. Style and stigma are all made up of irregularly shaped parenchymatous cells (Plate I Fig. 1-4).

## Discussion

From the above description it is evident that the flower under investigation is unisexual female flower with well-developed hairy perianth, pentalocular ovary with many ovules showing axile placentation with short style and tetrafid stigma.

When it is compared with already reported fossil flowers, though it shows the similarities with them, but all the flowers are bisexual in nature, hence it is compared with the unisexual flower *Flofeminaintertrappea*. *Flofeminaintertrappea* flower is bracteate with two whorls of perianth, ovary unilocular having free central placentation with many ovules possessing long style and bifid stigma, while present studied flower is ebracteate, with single whorl of perianth, ovary unilocular showing axile placentation with short style and tetrafid stigma.

It states that no resemblance is seen with the reported unisexual flower from Deccan intertrappean beds. Therefore it is compared with living families, those having unisexual flower like Cucurbitaceae, Euphorbiaceae, Tiliaceae, Menispermaceae.

Family Cucurbitaceae (Roy, Shukla and Dutta 1992) having unisexual female flower, ovary softly hairy, spherical or oblong, ovule numerous but present fossil flower shows hairless ovary therefore it is different.

In Euphorbiaceae (Roy, Shukla and Dutta 1992) having unisexual female flower, ovary globular structure, spherical, ovule not in numerous number, perianth one seriate with weak hair but present fossil flower shows ovule in numerous number therefore it is different. Tiliaceae having unisexual female flower with weak hair on perianth, stigma lobed, ovary with stalk, ovule in numerous number but present fossil flower shows tetrafid stigma therefore it is very different.

Menispermaceae having unisexual female flower with hair on perianth, stigma lobed, ovary with

stalk, female flower without bract (Roy, Shukla and Dutta 1992), flower minute, pedicelled, ovule in numerous number, present fossil flower shows very close resemblances, so it is compared to living genera of family Menispermaceae.

In

Menispermaceae, *Clasampelospaireira*, female flower with hair on perianth, stigma 1-3 lobed, ovary with stalk, female flower without bract. *Cocculushisutus*, female flower with hairs on perianth, stigma lobed, ovary with stalk, female flower without bract, flower average in size, pedicelled, ovule in numerous number. *Tinosporacordifolia* female flower with hairs on perianth, stigma lobed, ovary with stalk, female flower without bract, pedicelled, ovule numerous.

From the above comparison it is clear that the present fossil flower show maximum resemblances with the living family *Menispermaceae* with regards of the size, shape and its Menispermous nature. The affinities are more towards Menispermaceae. Hence it is named as *Menispermaceopushpamanganji* gen. etc sp. nov. The generic name is after the family *Menispermaceae* under which the fossil flower has been placed and the specific name comes from the locality Amanganj.

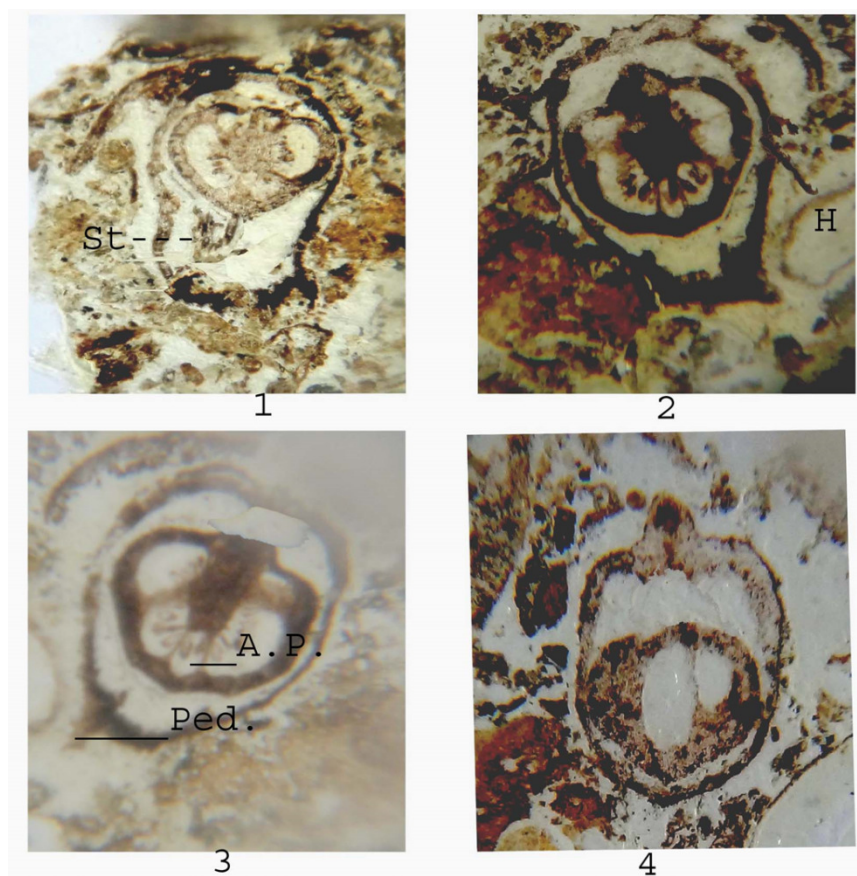
### Diagnosis

#### *Menispermaceopushpamgen. nov.*

Flower dicotyledonous, monochlamydous sessile, unisexual, hypogynous, actinomorphic, ovary pentalocular with axile placentation. Perianth tubular with hair.

#### *Menispermaceopushpamanganji* gen. etc sp. nov

Flower very minute, monochlamydous, sessile, unisexual, hypogynous, actinomorphic 1mm long and 0.5mm broad; perianth united single, tubular, 5 angled, ovary superior, 5 locular; placentation axile, single row of ovules in each locule, style short, stigma tetrafid.



**Figure 1**

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