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THE SCIENCE OF PLANTS IN KALIDASA'S WORKS

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Abstract

The plants have been distinguished as trees, creepers, small trees, with flowers, bushes, hydrophytes, bulbous, roots, and grass etc. The shape, colour, taste, texture of flowers, fruits, leaves wood are very keenly marked by the Kālidāsa. The taxonomy, classification of plants are also the subjects where he to some extent ventured into and managed to depict the basic of plant science. The most striking is that he very accurately mentions the time of growth of trees, creepers, flowers, fruits, buds, leaves.

Key words: Amra, Jambu, Arjuna, Kunda, Herbs, hydrophyte, Iksu

Introduction:

Kālidāsa has that poetic excellence which is rare in the field of literature. Use of similes with accuracy and propriety is par excellence. His keen observation of the nature is being reflected in all his works. Traveling in India then he could assess the socio-cultural geographical, historical and above all the physiological aspects of people and human nature from the top of the Kailāś mountain to the Tibet valley in the north and Kāśmir to the seabeaches in south. He mentions every tiny bit like mountains and rivers, states, countryside, kingdoms, kings, people, tribes, animals and plants. It is not that he mentions the name of plants only, but the shape, colour, taste, texture of flowers, fruits, leaves wood are very keenly marked by him. The taxonomy, classification of plants are also the subjects where he to some extent ventured into and managed to depict the basic of plant science. The most striking is that he very accurately mentions the time of growth of trees, creepers, flowers, fruits, buds, leaves which proves that he had traveled in India staying at least for six seasons at a particular place and followed the happenings, changes around him.

There are different types of plants of Kālidāsa's works arranged alphabetically as per the size, texture and usage.

(A) TREES

1. CANDANA

The different names for candana are Gandhsāra, malayaja, bhadrāsveh¹ the English synonym of this tree is sandal wood. It is a sacred tree and mostly used in religious worships and sacrifices.

The usages as mentioned by kālidāsa is the paste of wood which cures the sun heat. As it helps in keeping the body cool. The paste if besmeared on the body releases heat as well as tiredness. It grows well with the south breeze (malayavāta) and is mostly found in south of India. It's fragrance even invites the king cobra to stay on it.²

2. NAMERU

The popular name of this tree is RUDRĀKṢA. It is found mainly in the Himalayan plains. It gives dense shade and according to the poet flowers also come on the tree. However, the beads of rudrākṣa has the power to control the pressure in the body for which the attendants of Siva specially wear it on their head and body.

3. PALAŚĀ

It is other wise known as kiṃṣūka it's leaf is of dark green colour and thick. Flower come in the spring seasons, which are red in colour and devoid of fragrance. And the shape of the flower is similar to the size of the half moon. The leaves fall in the winter, and come again at the advent of rainy season.

4. SARALA

As the name implies it grows straight upto a great height, typical to the trees growing in the Himalayan range. In the summer it becomes so dry that catches fire by rubbing with one another. That means they grow so close that creates a dense forest. The forest fire occurs only because of the fire ignited by this tree. Kālidāsa writes about the sap of the tree which is said to be very fragrant. The sap oozing out of the skin of the tree is very glossy and oily. For which even in the night it can be located. The English synonym of this tree is "mast tree".

5. SAPTAPARṆA

The English synonym is Devil tree. The name implies that it has seven leaves in one bunch. Due to excess leaves it is very dense giving deep shade. Flower of this comes in the autumn season. It's sap is very acute to smell.

6. SĀLA

Attaining a great height the tree has strong branches. The smell of the tree is very intoxicating. It is called sal in English.

7. SĀLMALĪ

It is known as 'silkcotton' it is also a big tree with a thorny trunk and spreading branches. Kālidāsa mentions the tree only to compare it's thorns with the thorns of mace.

8. ŚIRĪṢA

A big tree, attaining a great height and branches spread all over, gets tiny tender flowers in the summer.

9. UDŪMBARA

This tree grows in abundance in the vindhya forest. As written by the poet, it gets fruits which are eaten by the animals. It is called 'fig' tree in English. The fruits ripen with the touch of cold breeze.

(B) TREES WITH FRUITS

1. ĀMRA

The buds of mango come in spring whereas the fruits come in between summer to rainy season. The buds first get green colour and gradually become off-white and copper colour.³ Their taste is very bitter.

The poet says the sap drops from the bud in the spring which is very intoxicating. But the buds of "Cūta" look grey.⁴ Here also the "Malaya" breeze helps in blossoming of the mango buds. The different variety of mango has been mentioned as Āmra, Cūta, and sahakāra. The mango of cuta tree is juicy where as that of sahakāra is very fragrant.⁵ The fruits of sahakāra is the best (manojñagandhaṃsahakāravṛkṣaṃ).⁶

The easily available mango is kananāmra which ripens in the summer and is of pale white colour. It comes in abundance in the forest area of the vindhyas as mentioned in the MD.

The sahakāra mango tree is a better quality mango. It is said that its leaves do not fall down in the winter whereas all other trees cast down their leaves in winter. It looks green in winter as well as in spring.⁷ As usual Malaya breeze helps in the blossoming of mango buds.

2. ĪNGŪDĪ The fruits of Īnguūdī are used for extracting oil, which is used as a medicine for curing the bruises etc. and to light the lamp also. The hermits crush the fruits on a stone with the help of another stone piece and collect the sap to extract the oil.

3. JAMBŪ

It is called rose apple in English. In the rainy season purple coloured fruits come in this tree. Not only the fruits but also the leaves taste very bitter. However the juice of the leaves even help in curing the indigestion, vomiting etc. for which, kālidāsa writes that the cloud will get rid of the vomiting by drinking the medicated water of Revā. The leaves falling in the water of the Revā river is treated and gets the power to heal the indigestion, problem, on the bank of the river Revā in the vindhya forest this tree grows. It is a huge tree which grows in the rain forest.

However, the poet writes about another variety called Rājajambū. Only it's fruits of red colour are mentioned in his work.

4. KADALĪ

In Amarakosa Kadalī is mentioned having different names like Rambhā, Aṃśumatphala, kasthilā, mudgaparnī, kakamūḍga, varanabūsā etc. It is popularly known as plantain in English. It's trunk is glossy, round shaped and of white colour with a tinge of green and yellow shade. Kālidāsa compares it with the thigh of a lady. Its fruits are very tasty and resemble the half circled moon. The flower is very big and red in colour. The shape of it is like the shape of an eye.

5. KARKANDHŪ

It's fruit grows in winter, which is supported by the description in Kālidāsa's book. The upper skin of it is of white and red colour and very sweet to taste. It is a thorny tree. In English it is known as Indian plum. It is also called vadari, Koli and others in amarakosa.

6. TINTILI

The English synonym is tamarind. Kālidāsa mentions only the fruit of tamarind which is very sour to taste. After consuming dates if one gets indigestion, he is advised by the poet to eat tamarind. It counteracts the indigestion caused by date.

(C) TREES WITH FLOWERS: (BIG)

1. ARJŪNA

This tree is mainly found in the south India.⁸ Only the flower of Arjūna is mentioned by the poet which blossoms in the rainy season and it is of white colour.

2. AŚOKA

There are two varieties of aśoka namely Raktāśoka and svetāśoka⁹ the red coloured flower blossoms in the spring season. It is a big tree with lots of leaves on it.

3. KADAMBA

The tree grows in the rainy season mainly in the mālyavanta hilly region. It is also known as "NĪPA". In english it is spelt as "codamba". The flower comes with the heavy shower of rain. It's petals are like needle coming out of the circular porous bud. The colour of Kadamba flower is said as green and off-white However, it is said to be red in colour in MD.¹⁰

4. NICŪLA

It is very confusing that the word nicuūla is mentioned as a tree in VU where as the description in MD confirms it as a cane creeper.¹¹ Any way, the tree according VU grows in the mountain with high peaks. The buds come out in the rainy season along with heavy shower and lightning.¹²

5. SEPHĀLI

The sweet smelling attractive flowers blossom on this tree in autumn.

(D) TREE WITH FLOWERS (Mediumsized)

1. ARKA

The sap and the smell of flower are very acute smelling and bitter to taste.

2. BANDHŪKA

In the autumn season flower comes on the tree with pollens of red colour.

3. CAMPAKA

Flower of off white and yellow colour with mild fragrance blooms in the spring seasons with less dew.

4. JAPĀ

As mentioned in the Mahākāvya of kālidāsa it grows in abundance in the Himalayas on the bank of Mandākinī river. It's flower is of red colour.¹³ The tree is so dear to the inhabitants. of the mountain that they even plant this tree in their garden. It is used for worship and also for decorating the body of the ladies. This is also known as 'mandāra'.

5. KAKŪBHA

The name of this flower is mentioned in MD and RS both. It is a fragrant flower blooming in the rainy season.¹⁴ The ladies love to make it their ear ornament to decorate themselves.¹⁵

6. KAṚṆIKĀRA

It's blossoming time is recorded in the works of kālidāsa as summer and spring seasons. The flowers are of golden yellow colour. It has no smell. The creator was so disheartened to create it that he gave a bad acute odour to it.¹⁶ However, ladies use this flower to decorate their ear and hair.

7. KEŚARA

It has intoxicating but good smelling flowers blooming in the spring season. The smell prevails in the flower even if they dry up in the summer. On the other hand, kālidāsa mentions the filaments as keśara,¹⁷ it is also named as 'vakūla'

8. KOVIDĀRA

The young tender leaves (kisalaya) and the flower both arouse come the love sentiment in youth, which come in autumn season. It is known as purple orchid tree in English.

9. KŪNDA

Though the mention of this flower occurs in MD, in the rainy seasons the actual blossoming time as recorded in RS, is spring season. It is of white colour which is confirmed in both the books. It is so attractive that even the hermits get swayed away by the beauty of the flower even if they are devoid of all diseries. It is known as star jasmine in English.

10. KŪRAVAKA

The bud comes in the spring season and attracts all with its smell According to AS it is a thorny plant.

11. KŪTAJA

The kūtaja flowers are already available at the beginning of the rainy season as is known from MD. It is a fragrant flower. It grows in the hilly region of vindhyas.

12. LODHRA

The flower shows it's impact from winter to spring seasons. The flower is of white and red colour combined together, and the pollens are of copper colour.

13. PĀTALA

It is popularly known as paval. It's time is summer season. The flower is of red colour which adorns the Sahakāra tree in the summer, when it is devoid of leaves. It is contradicting the fact that sahakāra is said as a tree with leaves in all seasons. It is said earlier that sahakāra tree never cast down its leaves in winter like other trees.

The pātala flower is very fragrant which makes the surrounding very aromatic.

14. PŪNNAGA

It is also written as nagakeśara. It is mainly found in komkama in India. The honey bee gets attracted towards it because of the access smell.

15. SINDHŪVĀRA

The ladies adorn their body with this flower.

16. STHALAPADMA

It is mentioned in M.D. while depicting the beauty of Alakā. It grows with the shine of the sun. So rainy season is not favourable for the growth of this flower as clouds obstruct the path of the sun in rainy season.

(E) TREE (Appearing similar to cocoanut)

1. KHARJŪRA

It is not as high as cocoanut tree. But the leaves look similar. It's fruits are very sweet though the kernel is too big and hard whereas the mass of the fruit is very scanty. It has a thin skin over it. It grows in the summer because the poet mentions that the ichor smell mingles with the smell of it's sap. For the ichor of elephants flow down from the pore under the eye in the summer.

Only the sap of the tree is also of very good smell. It's skin of the trunk is not smooth and very hard. So elephants love to rub their head against it to get out of the itching sensation.

In As Kālidāsa says that too much eating of date causes indigestion. In that case it can be subdued by eating tramarind. It grows mostly in vindhya rain forest.

2. NĀRIKELA

It needs saline water and soft soil to grow. South oceanic wind helps in its growth. It is mainly found in sea beaches as evident in Kālidāsa's books. The fruit is used for water and the mass inside it.

3.PŪGAMĀLAṂ

It is known as betel nut or areca nut. It is available in beaches of Sothern part of India. It is mentioned as providing shade. It's fruit is mentioned but not as the betel nut the fruit enchants people.

4. TĀLA

A tall tree growing on the sea-beach is famous for it's fruits. It's leaves are long and wide. The way it is made does not move even by the sea breeze. That proves its hardness. For which fans are made out of it. And the air striking against the hard leaf makes a great sound.

(F) HERBS**1. IKṢŪ**

The sugarcane as it is known in English grows in the winter season being nurtured by chilly wind. Its sap is used as a good drink in summer. It grows in abundance which creates deep shade. Kālidāsa says it grows so closely and the leaves spread covering wide area helps the soldiers to hide themselves and they can take rest also in the shade. the stem is sweet tasting whose juice is extracted for making jaggery. Īkṣū is mentioned as full of juice in Amarakośa.¹⁸ Also people chew the stem breaking it into pieces and take the delight of testing the sweet juice. The dialogue in AS by vidūsaka confirms this. Īksūmiva tribhangam karoti.¹⁹ The best variety of this is called 'sāli'.

2. DURVĀ

It's colour is mentioned as green colour. It grows extending from stem to stem and used for decorating the ladies. However, it is mostly used in the sacrifices, it is a variety of grass. It is said as dog grass in English, it is considered very auspicious.

3. KALAMA

It is planted in the rainy seasons through transplantation. It becomes ready for harvest in the autumn season. Due to the ripe yellow coloured Grains the entire field looks yellow.

4. KICAKA

It is also known as vaṃśa in Sanskrit. In the rainy season it sprouts from the root and become fully grown in summer. It grows up to a great height with hollowed trunks. The technique of making flute was inspired by the natural sound coming through the hollowed bamboos. They grow in the rain forest.

5. NIVĀRA

It grows of it's own self unlike kalama, in the rainy season. It is used for the sacrifices and the plants, when dries up, are eaten by the deers of the hermitage as mentioned by the poet in as. The grain of this paddy plant is of black colour which is considered very auspicious in worship. The dwellers of the hermitage had to pay 1/6th of this grain as tax to the king to be used in the auspicious functions at cities.

6. SĀLI

In the hemanta the grains become ripe and due to the grains the plants bend down. It grows in the autumn²⁰ with the lotus and becomes ready when the lotus dies due to excess cold. The village ladies get delighted looking at the field overladen with these grains.

7. YAVA

The grains and the sprouts from the grains are used in the auspicious festivals.²¹

(G) BUSH**1. KETAKĪ**

It is a bushy plant which grows in the rainy season. The flower is full of tiny nails.²² On both sides and is of white colour. When full grown the pollens scatter around in the near by surroundings

making the environment very fragrant. While describing the hilly areas of Daśarṇa Kālidāsa speaks of this plant.

(H) HYDROPHYTES

1. KANDALĪ

It is mostly found in the rainy season. The buttons lying dormant under the soil suddenly sprouts up with the sound of thunder-bolt. These sprouts further grow with rain shower and become dark green in colour. Kalidāsa confirms that this kandalī grows in the forest fields.

2. LĀVALI

This grows in the swampy fields. They look white.

3. KŪMŪDA

It is called waterlily in English. It blooms in the autumn season in the night. Because of the moon it gets the white colour. It needs crystal clear transparent water to grow. It also gets blue colour.

4. PADMA

It blooms in the day time. The lotus, as it is called in English blossoms mainly in the autumn but it is also found in the summer season. Direct sunlight makes it grow. So it fades away in the night with the absence of the sun. It grows in the transparent and steady water.

5. TĀMARASA

It's flower is of red colour. While slaughtering the enemy purandara used the arrows in a great number. And his face resembled the colour of the flower of tāmarasa. People loved to grow it in the ponds of their houses.²³

(I) CREEPERS

1. AŚOKA

It is said to be both creepers and tree. The flower is of two types, one is red in colour (Raktāsoka) and the other white. It blossoms in the spring but nothing special is mentioned about the fragrance.

2. ARJŪNA

The flower comes in the rainy season. In south the white coloured fragrant flower along with the pollens is seen.²⁴

3. DRĀKṢĀ

The grapes comes in the grape vines. According to AK mūdrikā Gostani, are the synonym of drākṣā in Sanskrit. It is famous for it's 'madhūrasa'the sweetness.

4. ELĀ

It grows in plenty from the mālavār coast to kachh in the south west of India. The south breeze helps it to grow along with the sandal trees. The English synonym is green cardamom.

5. FALINI/PRIYANGŪ

It is just mentioned as a creeper going to be married to the sahakāra tree in RV.

6. KANKELĪ

The white coloured flower resembling the whiteness of teeth bloom in the creeper in autumn season.

7. MALLIKĀ

This flower is named as sayantnamlikā, gimalikā and navamallikā in different context. The fragrance of this flower spreads in the evening. As it blossoms in the evening ²⁵ it is surely a white flower. The girimallikā in MD blooms in the rainy season, which was offered to the cloud by yakṣa.²⁶ And navamallikā is a very delicate flower like śakuntalā,²⁷ as described by priyambadā in AS. It is known as jasmine in English.

8. MĀDHAVĪ

This creeper looks very attractive with leaves and flowers in the spring season. For which the kings love to plant it in the pleasure garden near to their royal mansion. It is mentioned as a fragrant creeper both in VU and MA. At the end of the spring season in the month of caitra this creeper dies as is known from the description in AS. As the leaves of mādhavī creeper dies because of the air so also śakuntalā looks very pathetic due to the pangs of love.²⁸

9. MĀLATĪ

It has fragrant flowers. In the winter with the touch of dew and the fragrance of mālatī flower the wife of yakṣa wakes up from her sleep. It is said that this creeper blossoms twice in a year, i.e in the autumn and rainy season. The colour of the flower is white.

10. ŚAMĪ

As the description of śamī occurs in RV and AS the leaf of the creeper is very stiff and rough and the stem is inflammable for which it is used in the sacrificial fire. The leaves of this creeper are also used in the sacrifice along with the puffed rice.

11. TAMĀLA

Only in the RV kālidāsa writes about this creeper. It grows on the sea-shore of south. It is full of leaves hence is very dense. It is also grows in the hilly region. The flowers are very fragrant.

12. TĀMBŪLA

The leaves are wide enough to be used as a container for drinking water. It mostly is found in the south which grows with the south breeze. Tāmbūla is said to be of two types. One is tāmbūli and the other is nāgavali.²⁹

13. USIRA

It is a type of grass which is used as a pacifier of heat in the summer. The paste made out of it is used on body.

14. VĀNĪRA

It grows on the banks of river for it needs water to grow. Pampā lake and sarajū river are the place where vānīra grows.

15. VETASA

It grows on the river bank it gets crooked because of the flow of the water. It is used for treating the heat stroke.³⁰

16. VIṂBA

It is popularly known as 'Tindora' in India. It grows in the autumn season. It is of the shape of the lower lip. The white seeds inside it are taken as the teeth inside the lip by the poets. When the fruit ripens it's interior looks red and the seeds white in colour stay in a row horizontally, resembles the lip and the teeth in the month.

17. YŪTHIKĀ

In the mountain named as nicaiḥ the poet sees the flowers in the yuthika groves, which are very fragrant. As it is mentioned in the MD it is expected to bloom at the advent of the rainy seasons.

CONCLUSION:

The place of origin to the taxonomy of classification of the plants do not differs or contradict each other. However some of his plants are not identified as the name and time has changed significantly. The Fig tree appears to be a shrub, while the Tamāla is not a creeper with blue flowers. The physical description, sometimes, does not match with the scientific characteristics of a particular plant or a part of it. To sum up it can be said that kālidāsa is well aware of the plants prevalent at that period. He even mentions about the cultivation and harvesting (Kruṣiphalaṃ). Even mention of the word 'Udyanalāṭā' in AS refers to the plantation of different trees, creepers etc, by the king in the pleasure garden near the royal mansion or harem. The hermits also love to plant trees.

END NOTES:

- 1.AK-V1-131
- 2.Krsnasarpasisuneva candna AS-VII-18
- 3-AS-VI-2(ātāmrāharitapāṇḍura
4. VU-II-7(kapisacutenavamanjari)
- 5.(āmracūtarasālo'sausahakāro'tisaurabhah)
6. RV-XVI-52
7. VU-II-6
8. AS-VI-2(ātāmrāharitapāṇḍura)
9. VU-II-7(kapisacūtenavamanjari)
10. (Nipamḍrustva haritokapisam ketakeirardharudheih
11. RV-XVI-52-VU-II-6
12. nīcūlatarubhih manjaricamarani-VU-IV-4
13. MD-39
- 14-MD-22
- 15-RS-II-21
16. dūnoti nirgandhataya sma chetah-KS-III-28

17. MD-21, 78 / RV-IV-67 / RV-IX-36 / MA-II-10

18. AK-4-163

19. AS-VI ACT

20.RS-III-17/RS-IV-1

21.RV-XVII-12

22.MD-24/MA-ACT-IV

23. RV-IX-37

24. RS-II-17/RV-XVI-51

25. RV-XVI-47

26. MD-4

27. AS-ACT-1

28- AS-ACT- iii- 8

29. Amarakosa

30. AS-ACT-III

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