

**RABINDRA BHARATI UNIVERSITY**  
**VOCAL MUSIC DEPARTMENT**

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**Katapayadi Chakra, Bhutasankhya Chakra and  
Determination of Swarasthanam.**

The name of 72 melas , innovated by Pt. Venkatmukhi somehow became unpopular. In the last decade of seventeenth century, Pt. Akalanka, a musical personality, made some changes in the names of the melas of Venkatmukhi. He realised that a procedure or a formula is necessary to memorise the names of the melas and the swarasthanas of any mela. According to him suddha mela is Kanakangi.

Pt.Akalanka introduced a Chakra sutra, called Ka-ta-pa-ya-di chakra. There are four series or Karmas in this Chakra, and those are *Kadinava*, *Tadinava*, *Padipancha* and *Yadyashta*. They are as follows -

<i>Series</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>0</b>
<b><i>Kadinava</i></b>	Ka ক	Kha খ	Ga গ	Gha ঘ	Uma ঊ	Ca চ	Cha ছ	Ja জ	Jha ঝ	<u>Nia</u> ঞ
<b><i>Tadinava</i></b>	Ta ট	Tha ঠ	Da ড	Dha ঢ	Nā ণ	<u>Ta</u> ত	<u>Tha</u> থ	<u>Da</u> দ	<u>Dha</u> ধ	<u>na</u> ন
<b><i>Padipancha</i></b>	Pa প	Pha ফ	Ba ব	Bha ভ	Ma ম					
<b><i>Yadyashta</i></b>	Ya য়	Ra র	La ল	Va ব	Sā শ	<u>Sa</u> ষ	Sa স	Ha হ		

Katapayadi Chakra is used to determine the mela-number of any mela. Suppose , ‘Vanaspati’ is a mela. We have to determine the mela number.

At first , we will take the first two syllables of the mela, and they are ‘Va’ and ‘na’ . The series number of ‘Va’ is 4 and ‘na’ is 0. So, the combination is 40. But we will take the adverse combination ,that is 04 or only 4. This is the mela number of ‘Vanaspati’.

Now we can take another example. Let us take the mela ‘Hemavati’. As before we will take the first two syllables which are ‘He’ and ‘ma’. According to the Katapayadi chart ‘He’ is 8 and ‘ma’ is 5. After combining the numbers adversely we get 58. This is the mela number of Hemavati.

Now we will determine the proper swarasthanams of those aforementioned ragas. To do so we have to take the

help of another chakra sutra, introduced by Pt. Akalanka and it is the ‘Bhuta sankhya chakra’. In this chakra there are twelve series or Karmas, named – Indu, Netra, Agni, Veda, Vana, Ritu, Rishi, Vasu, Brahma, Dishu, Rudra and Aditya. Each and every series comprises of six divisions, named – Pā, Shri, Go, Bhu, Mā, Shā. Those twelve series represents the purvardhas of twelve groups of melas, viz. Indu represents the purvardha of first group , ie. S-R<sub>1</sub>-G<sub>1</sub>-M<sub>1</sub>; Netra represents the purvardha of decond group , ie.S-R<sub>1</sub>-G<sub>2</sub>-M<sub>1</sub> etc; and those six divisions represents the uttardha part viz, Pā represents P-D<sub>1</sub>-N<sub>1</sub> ; Sri represents P-D<sub>1</sub>-N<sub>2</sub> and so on. The chakra is as follows –

Vibhag→ Chakra↓	Pā (পা) P-D1-N1	Shri (শ্রী) P-D1-N2	Go (গো) P-D1-N3	Bhu (ভূ) P-D2-N2	Mā (মা) P-D2-N3	Shā (শা) P-D3-N3
Indu (ইন্দু) S-R1-G1-M1	1	2	3	4	5	6
Netra (নেত্র) S-R1-G2-M1	7	8	9	10	11	12
Agni (অগ্নি) S-R1-G3-M1	13	14	15	16	17	18
Veda (বেদ) S-R2-G2-M1	19	20	21	22	23	24
Vana (বন) S-R2-G3-M1	25	26	27	28	29	30
Ritu (ঋতু) S-R3-G3-M1	31	32	33	34	35	36
Rishi (ঋষি) S-R1-G1-M2	37	38	39	40	41	42

Vasu (বসু) S-R1-G2-M2	43	44	45	46	47	48
Brahma (ব্রহ্মা) S-R1-G3-M2	49	50	51	52	53	54
Dishi (দিশি) S-R2-G2-M2	55	56	57	58	59	60
Rudra (রুদ্র) S-R2-G2-M2	61	62	63	64	65	66
Aditya (আদিত্য) S-R3-G3-M2	67	68	69	70	71	72

Now we can easily determine the swarasthanams of those two melas. At first, let us take into consider the mela ‘Vanaspati’. We have already known that its mela number is 4. Now, this number we will put in the Bhuta sankhya chakra. And we will see that , this number 4 represents the Indu chakra for purvardha, that is S-R<sub>1</sub>-G<sub>1</sub>-M<sub>1</sub>, and it also represents Bhu division for uttardha, that is P-D<sub>2</sub>-N<sub>2</sub>. Therefore the combination of purvardha and uttardha is S-R<sub>1</sub>-G<sub>1</sub>-M<sub>1</sub> + P-D<sub>2</sub>-N<sub>2</sub>, that means *Sadaja*, *Suddha rishava*, *Suddha gandhar*, *Suddha madhyam*, *Pancham*, *Chatusruti dhaivat* and *Kaishik nisad*. That is Sa-ri-Ri-ma-Pa-Da-ni.

Now we will take into consider the other mela ‘Hemavati’. We have already knew that its number is 58.

Now, this number we will put in the Bhut sankhya chakra and we will see that this number 58 represents the Dishu chakra of purvardha, that is S-R<sub>2</sub>-G<sub>2</sub>-M<sub>2</sub>, and it also represents Bhu division of uttardha and that is P-D<sub>2</sub>-N<sub>2</sub>. Therefore the combination of purvardha and uttardha is S-R<sub>2</sub>-G<sub>2</sub>-M<sub>2</sub> + P-D<sub>2</sub>-N<sub>2</sub>, that means *Sadaja, Chatusruti Rishava, Sadharan gandhar, Prati madhyam, Pancham, Chatusruti dhaivat and Kaishiki nidad*.

From the above stated analysis we can see that , ‘Vanaspati’, whose mela number is 4, has an another identity and that is ‘Indu-Bhu’. Similarly , ‘Hemavati’ whose mela number is 58, has also another identity and that is ‘Disi-Bhu’. These terms are called mela identity. With the mela identity we can determine the proper swarasthanam of any mela. Suppose , instead of mela name , some how we came to know the mela identity like ‘Vasu-Mā’, ‘Rudra-go’, Rishi-sha’, ‘Brahma-shri’ etc. From these identity we can also get the swarasthanam.

At first we can take into consideration ‘Vasu- Mā’. From the Bhut chakra, we have known that ‘Vasu’ is the eighth chakra, Now 8= 6+2. It means , 8<sup>th</sup> chakra is similar to 2<sup>nd</sup> chakra; but only difference is 8<sup>th</sup> chakra consists of M<sub>2</sub>. So Vasu represents 2<sup>nd</sup> chakra, using M<sub>2</sub>,

instead of  $M_1$ . And that is  $S-R_1-G_2-M_2$ . Second part of the mela identity is  $M\bar{a}$ . From the chakra, we have known that  $M\bar{a}$  is the fifth division and it represents  $P-D_2-N_3$ . Now the combination is  $S-R_1-G_2-M_2 + P-D_2-N_3$ , that means *Sadaja, Suddha rishav, Sadharan gandhar, Prati madhyam, Pancham, Chatusruti dhaivat and Kakali nishad*.

Now ‘Rudra-Go’ :-

$$\begin{aligned}
 \text{Rudra-Go} &= 11^{\text{th}} \text{ chakra} + 3^{\text{rd}} \text{ division} \\
 &= (6+5)^{\text{th}} \text{ chakra} + P-D_1-N_3 \\
 &= 5^{\text{th}} \text{ chakra, using } M_2, \text{ instead of } M_1 + P-D_1-N_3 \\
 &= S-R_2-G_3-M_2 + P-D_1-N_3 \\
 &= \textit{Sadaj, Chatusruti Rishav, Antar gandhar,} \\
 &\quad \textit{Prati madhyam, Pancham, Suddha dhaivat,} \\
 &\quad \textit{Kakali nishad.}
 \end{aligned}$$

Now ‘Rishi-Shā’ :-

$$\begin{aligned}
 \text{‘Rishi-Shā’} &= 7^{\text{th}} \text{ chakra} + 6^{\text{th}} \text{ division} \\
 &= (6=1)^{\text{st}} \text{ chakra} + P-D_3-N_3 \\
 &= 1^{\text{st}} \text{ chakra using } M_2, \text{ instead of } M_1 + P-D_3-N_3
 \end{aligned}$$

= S-R<sub>1</sub>-G<sub>1</sub>-M<sub>2</sub> + P-D<sub>3</sub>-N<sub>3</sub>  
 = *Sadaj, Suddha Rishav, Suddha gandhar,*  
*Prati madhyam, Pancham, Shatsruti -*  
*dhaivat, Kakali nishad.*

Now 'Brahma-shri' :-

'Brahma-Shri' = 9<sup>th</sup> chakra + 2<sup>nd</sup> division  
 = (6+3)<sup>rd</sup> chakra + P-D<sub>1</sub>-N<sub>2</sub>  
 = 3<sup>rd</sup> chakra, using M<sub>2</sub> instead of M<sub>1</sub> + P-D<sub>1</sub>-N<sub>2</sub>  
 = S-R<sub>1</sub>-G<sub>3</sub>-M<sub>2</sub> + P-D<sub>1</sub>-N<sub>2</sub>  
 = *Sadaj, Suddha Rishav, Antar gandhar,*  
*Prati madhyam, Pancham, Suddha*  
*dhaivat, Kaishiki nishad.*

We have to memorise that , the purvardhas are similar in character instead Madhyam, that means –

Puevardha	Purvardha
1 <sup>st</sup> chakra: Indu S-R <sub>1</sub> -G <sub>1</sub> -M <sub>1</sub>	7 <sup>th</sup> chakra : Rishi S-R <sub>1</sub> -G <sub>1</sub> -M <sub>2</sub>
2 <sup>nd</sup> chakra: Netra S-R <sub>1</sub> -G <sub>2</sub> -M <sub>1</sub>	8 <sup>th</sup> chakra: Vasu S-R <sub>1</sub> -G <sub>2</sub> -M <sub>2</sub>
3 <sup>rd</sup> chakra: Agni S-R <sub>1</sub> -G <sub>3</sub> -M <sub>1</sub>	9 <sup>th</sup> chakra: Brahma S-R <sub>1</sub> -G <sub>3</sub> -M <sub>2</sub>
4 <sup>th</sup> chakra: Veda S-R <sub>2</sub> -G <sub>2</sub> -M <sub>1</sub>	10 <sup>th</sup> chakra: Dishu S-R <sub>2</sub> -G <sub>2</sub> -M <sub>2</sub>
5 <sup>th</sup> chakra: Vana S-R <sub>2</sub> -G <sub>3</sub> -M <sub>1</sub>	11 <sup>th</sup> chakra: Rudra S-R <sub>2</sub> -G <sub>3</sub> -M <sub>2</sub>
6 <sup>th</sup> chakra: Ritu S-R <sub>3</sub> -G <sub>3</sub> -M <sub>1</sub>	12 <sup>th</sup> chakra: Aditya S-R <sub>3</sub> -G <sub>3</sub> -M <sub>2</sub>

Any mela number having a conjunct letter in the first two syllables, we have to consider the name as –

Suppose , a mela named ‘Chitrambari’;

We have to write as ‘Citrambari’, the first two syllables are ‘Ci’ or ‘Ca’ and ‘Tra’ or ‘ta’.

In case of ‘Chakrabak’ , we will write ‘Cakrabak’, the first two syllables are ‘Ca’ and ‘Kra’ or ‘Ka’.

In case of ‘Gangeyabhusani’, the first two syllables are ‘Gan’ or ‘Ga’ and ‘ge’ or ‘ga’.

In case of 'Kantamani', the first two syllables are 'Kan' or 'Ka' and 'Ta'.