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## ***Trichosanthes cucumerina* play a vital role to reduce the level of sugar of tribal of Dhanbad district Jharkhand**

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### **Abstract**

*Trichosanthes cucumerina* is one of the important medicinal climber which is used for the treatment of diabetes in the tribal regions of Dhanbad district. Besides diabetes, the plant is very much used by the tribal people for the treatment of syphilis, Liver ailments, Asthma, Leucorrhoea. Perusal of the data of Table-1. It is clear that out of by amino acids only nine could be detected from the plant under study. They were Lysine, *L. histidine*, *L. glutamine*, DL. Threonine, Glycine, L-valine, DL. Trophogen. In the above list it is clear that at least 6 essential amino acid are present. They were L-arginine, lysine, L-valine, DL-tryptophan, *L. histidine* and DL-Threonine. 6 are present in this plant and rest 3 are non-essential amino acids. Non-essential amino acids have curative effect on a diseased persons. Perhaps due to presence of these non-essential amino acids this plant is ethnobotanically important.

**Keywords:** *Trichosanthes cucumerina* climbers, tribal, Dhanbad

### **Introduction**

Dhanbad forests are rich in indigenous plants and they are still intact due to the dependence of tribal people on herbal medicines for the treatment of various diseases. For the present investigation *Trichosanthes cucumerina* was selected. The plant was collected from Dhanbad district in the month of July to November. *Trichosanthes cucumerina* is a member of cucurbitaceae and has a very wide range of ecological distributions.

The plant is rampantly used by the tribal people of Dhanbad for treatment of diabetes. Besides diabetes, the plants are very much used for the treatment of Asthma, Liver ailments, leucorrhea by the local vaidyas. Hybridization is very important tools for determining phylogenetic relationship. It is also used to determine the expression of sex male of inheritance and in transference of Gene's.

Besides amino acids and proteins, analysis of alkaloids of cucurbits has also been incorporated in the present investigation, because of the fact that, alkaloids represent the third largest group of secondary plant metabolites after terpenoid and phenol.

### **Materials and Methods**

The plants were collected from different places of Dhanbad on forest in the month of July-November. Simple chromatographic techniques were employed for detection of free and bound amino acids present in the plants following the methodology suggested by Clarke (1970). The  $R_f$  values were worked out on the basis of following formula

$$R_f = \frac{\text{Distance travelled by Solute}}{\text{Distance travelled by Solvent}}$$

The various amino acids were identified by comparing colouration of the spots and also by  $R_f$  values of the known amino acids from the index.

A set of 24 amino acids by 'Lobo' of U.K. way used for index purpose *Trichosanthes cucumerina* electrophoretic protein analy six and the result of analysis way given in Fig No. 3 and Table No.6. All to gether 3 protein band could be detected in this plant. They were protein band No. 1, 6 and 8 with have been their  $R_f$  value 1.3, 5.3 and 3.0.

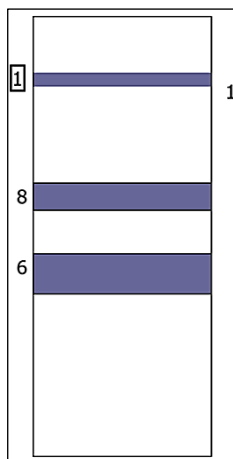
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**Fig 1:** Fingerprint of electrophoretic protein analysis of diploid *Trichosanthes cucumerina* collected from Dhanbad forest

## Results and Discussion

*Trichosanthes cucumerina* is a plant of the family Cucurbitaceae. It is a branched, prostrate on the ground, Y to

15" long with texture thick silky leaves. Leaves with almost equar shape and size. Leaves are broadly elliptical 0.25 to 0.5. Flowery are sub rotate up rotate up to 2" long. One tea spoon dried flowers and leaves is given to diabetic patients in the morning for lowering blood sugar level.

One tribal patient of the Dhanbad locality told us that in one week only, this herbal medicine lowered my sugar level from 390 to 152 pp. the data of amino acids analysis of *Trichosanthes cucumerina* given in Table.

The studies in santal medicines and snooted about the medicinal herbs used by tribals for the treatment of various diseases.

It is an important medicinal herb which is used for the treatment of diabetes in the tribal regions of Dhanbad forest. Besides diabetes, the plant is very much used by the tribal people for the treatment of syphilis, liver ailments, asthma, leucorrhoea etc. Perused of the data of Table 1. It is clear that out of the by amino acids only nine could be detected from the plant under study. There are present in this plant and rest there are non-essential amino acids.

**Table 1:** Pool of amino acids in free and bound forms in the leaf extract of diploid *Trichosanthes cucumerina* collected from Dhanbad forest

Amino acids	Rf × 100 in BA <sub>w</sub>	Concentration on visual observation							
		Free form			Mean	Bound form			Mean
		T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>		T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	
Lysine	03	+	+	+	+	-	-	-	-
L-histidine	05	-	-	-	-	-	-	-	-
Aspartic acid	17	2+	2+	2+	2+	-	-	-	-
L-arginine	06	-	-	-	-	-	-	-	-
Cysteine	10	-	-	-	-	-	-	-	-
DL-Asparagine	14	-	-	-	-	-	-	-	-
Proline	21	+	+	+	+	+	+	+	+
L-glutamine	15	3+	3+	2+	3+	-	-	-	-
Serine	18	-	-	-	-	-	-	-	-
Hydroxy proline	26	+	+	+	+	+	+	+	+
DL-threonine	20	-	-	-	-	-	-	-	-
Glycine	19	-	-	-	-	-	-	-	-
L-glutamic Acid	24	-	-	-	-	-	-	-	-
Ornithine	34	-	-	-	-	-	-	-	-

Amino acids	Rf × 100 in BA <sub>w</sub>	Concentration on visual observation							
		Free form			Mean	Bound form			Mean
		T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>		T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	
Hydroxy Phenylalanine	45	-	-	-	-	-	-	-	-
DL-alanine	22	-	-	-	-	-	-	-	-
DL-methionine	35	2+	2+	2+	2+	2+	2+	2+	2+
Butyric acid	63	-	-	-	-	-	-	-	-
L-Valine	32	-	-	-	-	-	-	-	-
Tyrosine	41	-	-	-	-	-	-	-	-
Phenyl alanine	43	+	+	+	+	-	-	-	-
Tryptophan	47	+	+	2+	+	-	-	-	-
Iso-leucine	57	-	-	-	-	-	-	-	-
L-leucine	44	2+	2+	3+	2+	+	2+	2+	2+

Finger print of electrophoretic protein analysis of the root extract *Trichosanthes cucumerina*. Dhanbad The root extract of *Trichosanthes cucumerina* analysed for alkaloids, collected from Dhanbad forest.

The was of root extract of *Trichosanthes cucumerina*. In the root extract of the plant only four types of alkaloids could be noticed Rf value\* 100 were 03.20.31 and 56.

*Trichosanthes cucumerina* was also examine biochemically for amino acids. This plant is included in the faming Cucurbitaceae in all nine types of amino acids could be

analysed in this plant. These amino acids were Lysine, L. itistiline, *L. arginine*, cysteine, 1. Glutamine, DL-threonine, Glycine, *L-aline*, DL-tryptophan. Protein analysis have been done of above medicinal plants. The result of electrophoretic analysis have been presented in Fig and Table.

*Trichosanthes cucumerina* electrophoretic protein analysis and the result of analysis was given in Fig and Table.

All together 3 protein band could be detected in this plant. They were protein band No.16 and 8 have been their R<sub>p</sub>. Value 1.3, 5.3 and 3.0 respectively.

**Table 2:** Alkaloids analysis of the leaf extract of diploid *Trichosanthes cucumerina* collected from Dhanbad forest

Alkaloids	Chroma to graphed Rf $\times$ 100	Visual Observation			Mean	Nature in Uv light	Reagent used for detection
		T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>			
Cytisine	03	2+	3+	3+	3+	Blue	Dragendorff
Nicotine	07	-	-	-	-	Absorbed	Iodoplatinate
Tomatine	08	-	-	-	-	Invisible	Iodoplatinate
Morphine	14	-	-	-	-	Absorbed	Iodoplatinate
Solanine	15	-	-	-	-	Invisible	Dragendorff
*Unknown	20	2+	2+	2+	2+	Fluorescent red	Dragendorff
Berberine	25	-	-	-	-	Fluorescent	Dragendorff
*Unknown	31	2+	2+	2+	2+	Absorbed	Iodoplatinate
Atropine	37	-	-	-	-	Absorbed	Iodoplatinate
Quinine	46	-	-	-	-	Bright Blue	Iodoplatinate
Coniine	56	+tr	+tr	-	+tr	Invisible	Dragendorff

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