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Phtochemical studies of ethnobotanically significant plant, *Trichosanthes cucumerina* from the tribal region of Dhanbad district, Jharkhand

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Abstract
In the present investigation phytochemical studies of *Trichosanthis cucumerina* has been done. It is on 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, Asthama, Leucorrea. Perusal of the data of Table-1, It is clear that out of by amino acids only nine couldbe detected from the plant under study. They were Lysine, L. itistidine, L. glutamine, DL. Threonine, Glycine, L-valine, DL. Trophloghan. In the above list it is clear that at least 6 essential amino acid are present. They were L-argentine, lysine, L-valine, DL-trophlophan, L. Hiistidine and DL-Threonine. 6 are present in this plant and rests 3 are non-essential amino acids. Non-essential amino acids have curative effect on diseased persons. Perhaps due to presence of these non-essential amino acids this plant is ethnobotanically important.

Keywords: *Trichosanthis cucumerina*, ethnobotanically significant plant, tribal

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* selected for study. The plant was collected from Dhanbad district in the month of July 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 asthama, Liver ailments, leucorrhea by the local vaidyas. The medicinal value of alkaloids is known since long. Our Vaidyas and Hakims are still treating their patients with the help of plants having alkaloids without having any knowledge of these compounds.
On the basis of above reasons, the areas of Dhanbad have been considered which are inhabited by many tribes such as Oraon, Munda, Ho, Santhals, Paharia, Bedia, Karmali and Birhor etc. The frequently use wild plants for the treatment of different diseases. Vaidyas, Jan gurus and Hakeems of Jharia, Maithan, Sindri, Govindpur, Katras were consulted to know different medicinal plant which they use as medicines. Here attention was given only to the plants of family Cucurbitaceae.
In spite of, all these reports very few chemical studies have been made on diploids and polyploids, so far and no definite relationship can be established for the cytological architecture and chemical constituents of diploids and polyploids.

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 Rp values were worked out on the basis of following formula.
The various amino acids were identified by comparing colouration of the spots and also by Rp 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 bands could be detected in this plant. They were protein band No.1, 6 and 8 with have been their Rp value 1.3,5.3 and 3.0.

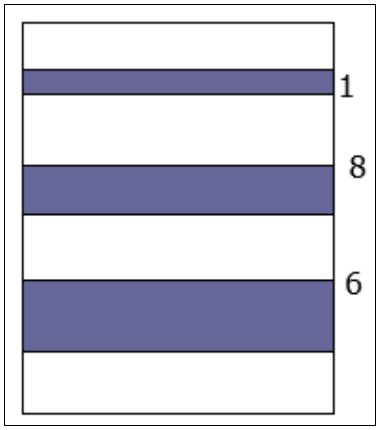

Fig 1: Fingerprint of electrophoretic protein analysis of diploid *Trichosanthes cucumerina* collected from Dhanbad forest.

Results and Discussion

Trichosanthes cucumerina is a plant of the family cucutbitaceas. 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 are 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 snouted 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 leucorrhea etc.

Perused of the data of Table 1, It is clear that out the by amino acids only nine could be detected from the plant undr 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 BAw	Concentration on visual observation							
		Free form			Mean	Bound form			Mean
		T_1	T_2	T_3		T_1	T_2	T_3	
Lysine	03	+	+	+	+	-	-	-	-
L-histidine	05	-	-	-	-	-	-	-	-
Aspartic acid	17	2+	2+	2+	2+	-	-	-	-
L-arginine	06	-	-	-	-	-	-	-	-
Cysteine	10	-	-	-	-	-	-	-	-
DL-Aspargine	14	-	-	-	-	-	-	-	-
Proline	21	+	+	+	+	+	+	+	+
L-glutamine	15	3+	3+	2+	3+	-	-	-	-
Serine	18	-	-	-	-	-	-	-	-
Hydroxyproline	26	+	+	+	+	+	+	+	+
DL-threonine	20	-	-	-	-	-	-	-	-
Glycine	19	-	-	-	-	-	-	-	-
L-glutamic Acid	24	-	-	-	-	-	-	-	-
Ornithine	34	-	-	-	-	-	-	-	-

Table 1: Continued …….

Amino acids	Rf ×100 in BAw	Concentration on visual observation							
		Free form			Mean	Bound form			Mean
		T_1	T_2	T_3		T_1	T_2	T_3	
Hydroxy Phenylalanine	45	-	-	-	-	-	-	-	-
DL-alanine	22	-	-	-	-	-	-	-	-
DL-methionine	35	2+	2+	2+	2+	2+	2+	2+	2+
Butyric acid	63	-	-	-	-	-	-	-	-
L-Valine	32	-	-	-	-	-	-	-	-
Tryosine	41	-	-	-	-	-	-	-	-
Phenyl alanine	43	+	+	+	+	-	-	-	-
Tryptophan	47	+	+	2+	+	-	-	-	-
Iso – leucine	57	-	-	-	-	-	-	-	-
L – leucine	44	2+	2+	3+	2+	+	2+	2+	2+

Finger prints of electrophoretic prorein analysis of the root extract Trichosanes cucumerina. Dhanbad.

The root extract of *Trichosanthes cucumerina* analysed for alkaloids, collectded from Dhanbad forest.

The way of root extract of *Trichosanthis 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.

Trichosantescucumerina was also examine biochemically for amino acids. This plant is indluded in the faming cucurbitaceae in all nine types of amino acids could be analysed in this plant. These amico acids were Lysine, L. itistiline, L. angentine, cyltein, 1.glutamine, DL-threonine, Glyeine, L-aline, DL-thyhlophan. Protein analyses have been done of above medicinal plants. The results of electrophoretic analysis have been presented in Fig and Table.

Trichosanthis 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 Rp. 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	Chromatographed Rf ×100	Visual Observation			Mean	Nature in Uv light	Reagent used for detection
		T_1	T_2	T_3			
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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