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## Phytochemical studies of ethnobotanically significant plant, *Evolvulus alsinoides* Linn, from the tribal region of Deoghar district of Santal Parganas, Jharkhand

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**Abstract:** In the present investigation phytochemical studies of *Evolvulus alsinoides* has been done. It is an important medicinal herb which is used for the treatment of diabetes in the tribal regions of Santal Parganas. Besides diabetes, the plants are very much used by the tribal people for the treatment of Syphillis, leucorrea, Bronchitis, Asthama and liver ailments. Perusal of the data of table 1. It is clear that out of 24 amino acids only seven could be detected from the [plants under study. They were lysine, L-valine, L-arginine, Cystein, Tyrosine and DL-tryptophan. In the above list it is clear that at least 4 essential amino acids are present, they were L-arginine, lysine, L-valine and DL-tryptophan. 10 essential amino acids are necessary for proper growth and their metabolic functions in human beings among which 4 are present in this plant and rest three are non-essential amino acids. Non- essential amino acids have curative effect on a diseased person. Perhaps due to presence of these non-essential amino acids this plant is ethnobotanically important.

**Key words:** phytochemical studies, *Evolvulus alsinoides*, Lysine, L-valine, L-arginine, Cystein, Tyrosine & DL-tryptophan

### INTRODUCTION

Santal Parganas 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 *Evolvulus alsinoides* Linn was selected for study. The plants were collected from Inarabaran forests of Deoghar district in the month of October-November. *Evolvulus alsinoides* is a member of convolvulaceae and has a very wide range of ecological distributions. The plant is rampantly used by the tribal people of Santal Parganas for treatment of diabetes. Besides diabetes, the plants are very much used for the treatment of syphilis, leucorrhoea, bronchitis, asthma and liver ailments by the local vaidyas.

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### MATERIAL AND METHODS

The plants were collected from different places of Inarabaran forest in the month of October- November. Simple chromatographic techniques were employed for detection of free and bound amino acids present in the plants following the methodology suggested by Herborne (1973)<sup>1</sup>.

$$R_f = \frac{\text{Distance travelled by solute}}{\text{Distance travelled by solvent}}$$

The RF values were worked out on the basis of following formula:

### RESULT AND DISCUSSION

*Evolvulus alsinoides* is a plant of the family convolvulaceae. It is a branched prostrate on the ground, 4-15" long with thinly or densely silky leaves. Leaves are

broadly elliptical -0.25 to 0.5". Flowers are sub rotate upto 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 Inarabaran locality told us that in one week only, this herbal medicine lowered my sugar level from 390-152 pp. The data of amino acids analysis of *E. alsinoides* is given in table 1, perusal of the data of table 1.<sup>2,3</sup> It is clear out of 24 amino acids only

seven could be detected from the plants under study. They were lysine, L. argenine, Cysteion, L- valine, Tryosine and DL- tryptophan among which cystein, L- valine and DL- tryptophan could be detected in higher concentration i.e. (3+) while lysine, L- argentine, glycine and DL tryptophan were present at (+) or (2+) level on visual observation.<sup>4</sup> Besides this, L- argentine, cystein glycine and DL- tryptophan were present in both the forms i.e. free form

**Table 1: showing data of amino acids present in the leaf extract of *E. alsinoides* collected from Inarabaran of Deoghar district.**

Amino acids	Rf value	Concentration on visual observation							
		Free form				Bound form			
		T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	Mean	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	Mean
Lysine	0.04	+	+	+	+	-	-	-	-
L. histidine	0.06	-	-	-	-	-	-	-	-
Aspartic acid	0.09	-	-	-	-	-	-	-	-
L-argenine	0.12	+	+	-	+	+	+	-	+
Cystine	0.16	3 <sup>+</sup>	2 <sup>+</sup>	3 <sup>+</sup>	3 <sup>+</sup>	+	-	-	-
DL- Asparagine	0.18	-	-	-	-	-	-	-	-
Proline	0.21	-	-	-	-	-	-	-	-
L –glutamine	0.23	-	-	-	-	-	-	-	-
Scrine	0.24	-	-	-	-	-	-	-	-
Hydroxyproline	0.26	-	-	-	-	-	-	-	-
DL-Threonine	0.28	-	-	-	-	-	-	-	-
Glycine	0.31	2 <sup>+</sup>	2 <sup>+</sup>	2 <sup>+</sup>	2 <sup>+</sup>	+	+		+
L – glutamic acid	0.33	-	-	-	-	-	-		-
Ornothine	0.34	-	-	-	-	-	-		-
Dihydroxy – Phenylamine	0.37	-	-	-	-	-	-		-
DL- alanine	0.45	-	-	-	-	-	-		-
DL- methionine	0.49	-	-	-	-	-	-		-
Amino butyric acid	0.56	-	-	-	-	-	-		-
L – Valine	0.61	2 <sup>+</sup>	3 <sup>+</sup>	3 <sup>+</sup>	3 <sup>+</sup>	-	-		-
Tyrosine	0.63	2 <sup>+</sup>	2 <sup>+</sup>	+	2 <sup>+</sup>	-	-		-
Phenylalanine	0.67	-	-	-	-	-	-		-
DL-tryptophan	0.71	2 <sup>+</sup>	3 <sup>+</sup>	3 <sup>+</sup>	3 <sup>+</sup>	+	2 <sup>+</sup>	2 <sup>+</sup>	2 <sup>+</sup>
Isoleucine	0.76	-	-	-	-	-	-		-
L -leucine	0.80	-	-	-	-	-	-		-

and bound form while the rest three were restricted to free form only.<sup>5</sup>

From the perusal of the table 1, it is clear that in this plant out of 10 essential amino acids 4 types were present. They were argenine, lysine, valine and tryptophan. Ten essential amino acids most important for human growth and proper metabolic functions.<sup>6</sup> Perhaps, due to the presence of these four essential acids in this plant, the plant is useful as medicine in various diseases.

Rest three amino acids are non-essential amino acids present in this plant, these were cyctein, tyrosine and

glycine. Non-essential amino acids specially cystein, glycine glutamic acid, DL methionine and ornithine have profound curative efforts on disease persons.<sup>7</sup> Perhaps, due to the presence of four essential and three non-essential amino acids in *Evolvulus alsinoides*, this plant is ethnobotanically important.<sup>8,9</sup> Cystein is a non-essential sulphur containing amino acid and its presence in the diet decreases the methionine percentage in the body.<sup>10</sup>

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