



## BIOCHEMICAL EVALUATION OF THREE MEDICINALLY IMPORTANT TAXA OF TERMINALIA (COMBRATACEAE).

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### A B S T R A C T

*Medicinally important taxa of Terminalia ( Combrataceae ) i. e. Terminalia cuneata, Terminalia chebula and Terminalia bellerica were studied for the seasonal variations of proteins and amino acids. Plant parts like leaf, bark and wood was selected for investigation of seasonal variations of proteins and amino acids. Comparative account of protein content of bark of three tree species revealed that Terminalia bellerica was rich in protein. Amino acid content of leaves of three tree species revealed that Terminalia cuneata and Terminalia chebula showed higher level of amino acids*

**Keywords:** Proteins, amino acids, Terminalia, Combrataceae

#### Introduction :

All living matter contains proteins as its chief constituent. They also contain carbon, hydrogen, nitrogen and sulphur. Some contain phosphorus also. There are over 200 different amino acids found in nature, they are the monomers proteins but only about one tenth ( 20 ) of these occur proteins. The same 20 amino acids are present in plants, animals and microbial life. The carbohydrates, proteins, fats and amino acids are the main storage products. Sometime, there is a wide variations in the seed composition of different species within the same genus ( Krumer and Kozlowski, 1979 ). Many wood plants contain medicinally important secondary products ( Kadam, V. B., 2001, and Kadam and Ahire, P. P. 2007 ). The present study was made to investigate the occurrence and seasonal variations of proteins and amino acids in three medicinally important taxa of Terminalia (

#### Materials and Methods :

The different plant parts i. e. leaves, bark, wood were collected for estimation of amino acids during summer ( April ) , monsoon ( August ) and winter ( December ) seasons continuous for two years, the chemical analysis of proteins and amino acids in five replicates have been carried out in leaf, bark and wood. On the basis of data, results were statistically analysed for 't' test. Proteins and free amino acids were extracted following the method of krishnamoorthy et. al. ( 1989 ). The protein content was estimated by method of Lowry et. al. ( 1951 ) and the total amino acids by using 0.4 % alcoholic ninhydrin reagent ( Krishnamoorthy et. al. , 1989).

#### Results and Discussion :

The three species of Terminalia 9 Combrataceae ) having a wide variations in plant prod-

Seasonal variations in proteins and amino acids of three plant species in summer ( S ), Mansoon ( M ) and winter ( W ).

Plant parts	Seasons	Protein ( mg . g dry wt. )			Amino acid ( mg / g dry wt. )		
		Terminalia cuneata	Terminalia chebula	Terminalia bellerica	Terminalia cuneata	Terminalia chebula	Terminalia bellerica
Leaves	S	2.192 *	2.522**	1.682**	4.08	4.732*	0.999
	M	1.723	2.152*	1.529*	4.723**	5.571**	0.952
	W	2.232**	1.864	1.352	4.521*	4.34	0.855
Bark	S	1.935	1.950**	2.336***	2.558**	2.73**	0.852
	M	1.532	1.511	2.387	2.212***	2.592*	0.884
	W	1.643*	1.762*	2.561***	2.113	1.012	0.983
Wood	S	0.592	0.665***	1.212***	1.523*****	2.238**	2.051
	M	0.923**	0.602**	0.921	1.052**	1.532	1.923
	W	0.850**	0.541	1.195	0.952	1.658**	1.712

\*, \*\* and \*\*\* is significant at 1, 5 and 10 % level respectively based on 't' test.

Combrataceae ) Terminalia cuneata, Terminalia chebula and Terminalia bellerica have showed restricted occurrence and much medicinally importance.

The proteins and amino acids measured in leaf, bark and wood of Terminalia cuneata, Terminalia chebula and Terminalia bellerica as shown in table 1. The protein content in Terminalia chebula was high

in all seasons ( 1.86 -2.52 mg / g dry wt.) than in monsoon and winter (2.15 and 1.86 mg/g dry wt ) respectively. The bark of Terminalia bellerica having higher protein content (2.33 -2.56 mg/g dry wt.) in various seasons. As compared to other two plants, the proteins in wood were comparatively low (0.54 -0.92 mg/ g dry wt.) in all ( from table 1) .

The amino acid of leaves of Terminalia cuneata and Terminalia chebula ( 4.08 -5.57 mg/g dry wt. ) was higher than Terminalia bellerica ( 0.85 - 0.99

mg/g dry wt. ) in different seasons. Terminalia cuneata and Terminalia chebula (2.01- 2.55 mg / g dry wt.) was higher than Terminalia bellerica ( 0.85 - 0.98 mg/ g dry wt. ) in different seasons. The wood of Terminalia chebula and Terminalia bellerica accumulate high level of amino acids (1.92 -2.23 mg/ g dry wt.) than Terminalia cuneata (0.952-1.52 mg/ g dry wt.) There was high protein content in bark of Terminalia bellerica in all seasons. The amino acids in Terminalia cuneata and Terminalia chebula is high in all seasons.

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