

**CHAPTER VII**

Free Amino Acid content



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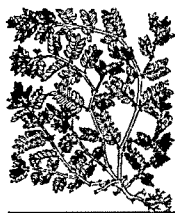
## ***INTRODUCTION:***

Proteins are the most abundant organic molecules of the living system. They occur in every part of the cell and constitute about 5% of cellular dry weight. Proteins form the fundamental basis of structure and function of life.

Proteins perform a great variety of specialized and essential functions of the living cells. The structural (Static) functions include the performance of brick and mortar role and are primarily responsible for the structure and strength of plant body. The dynamic functions of proteins are more diversified in nature. These include proteins acting as enzymes, hormones, membrane receptors, storage proteins, besides their functions in genetic control, molecule contraction, respiration etc.

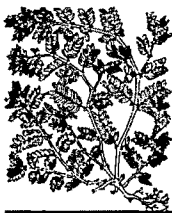
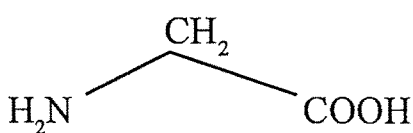
Proteins are predominantly constituted by carbon 50-55% Hydrogen 6-7.3%, Oxygen 19-24% Sulphur 1-4% twenty types amino acids work as basic unit in the formation of all the proteins.

All the components of plant body always contain free amino acids. In addition to proteins, several peptides perform biologically important functions. These include glutathione, oxytocin and vasopressin.

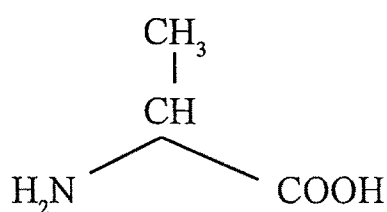
**FREE ANINO ACIDS OF *T. TERRESTRIS*:**

Free aminoacids in the root nodules of *T. terrestris L.* were qualitatively analysed by Ather, et al<sup>23</sup> using microchromatography. Altogether twenty two free aminoacids were identified. Glutamic acid, Glutamine Aspartic acid and Aspangenine being the Major amino acids. These amino acids resemble with the amino acids of the leguminous nodules which suggest a chemotaxonomic link between these two major group of nodulated angiosperms. Other amino acids indentified are cystine, Tryptophan, Serine, Proline, Glycine, Alanine valine Methionine, Leucine, Isoleucine, Tyrosine, Phenylalanine, Amine Butyric acid, Ornithine, Hiistidine and Arginine.

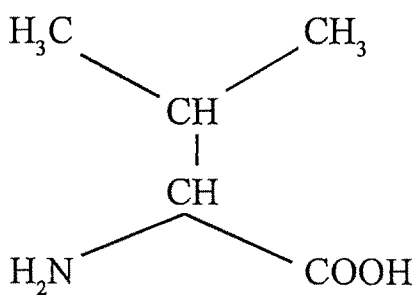
Chakravarti, et al. isolated Mosgemin from the weeds of *T. Terrestris Linn* Seth et al. reported the sodium, Potassium and calcium contents in the fruits of *T. Terrestris linn.*

**Name and Structure of Free Aminoacids in T. Terrestris Linn:****(i) Amino acids containing aliphatic hydrocarbon chain**

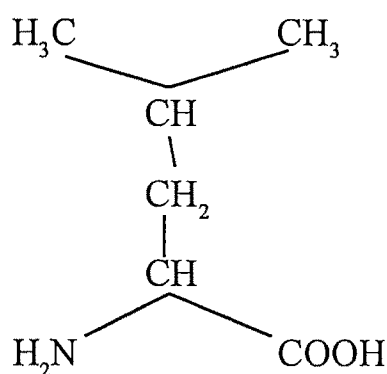
(a) Glycine



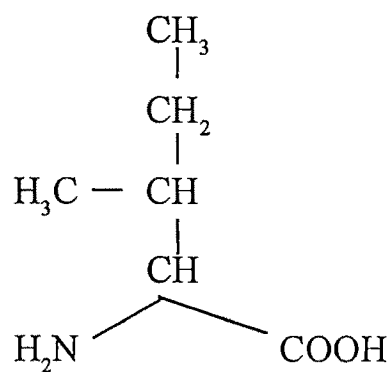
(b) Alanine



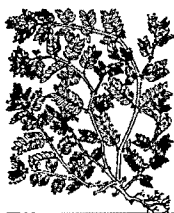
(c) Valine



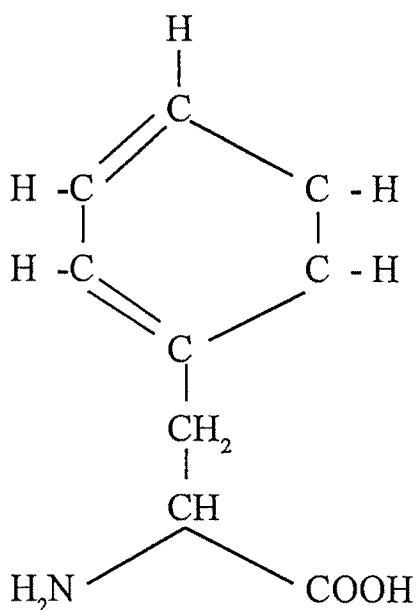
(d) Leucine



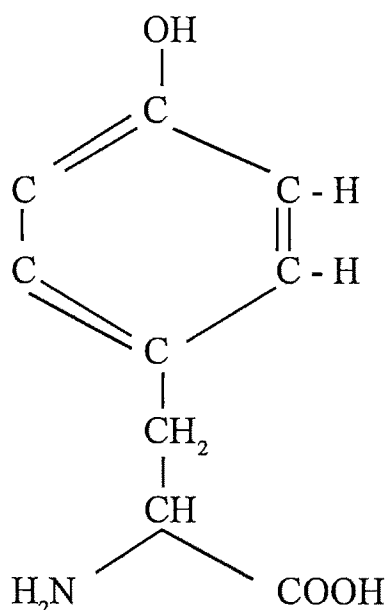
(e) ISO leucine



(ii) Amino acids containing aromatic side chain

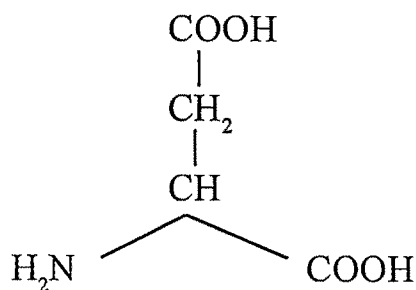


(f) Phenylalanine

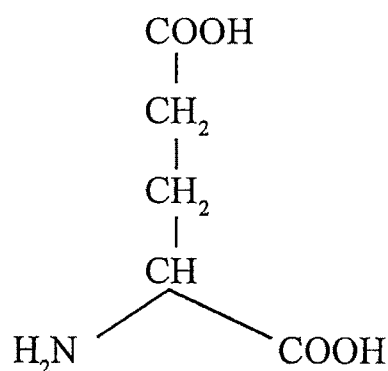


(g) Tyrosine

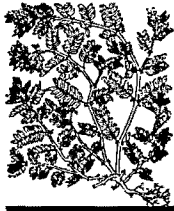
(iii) Amino acids containing acidic side chains



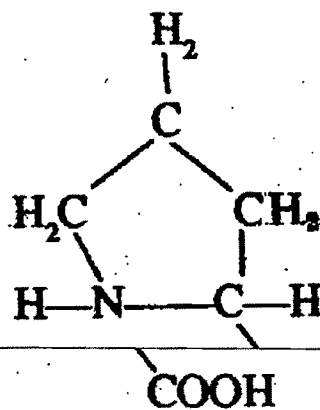
(h) Aspartic acid



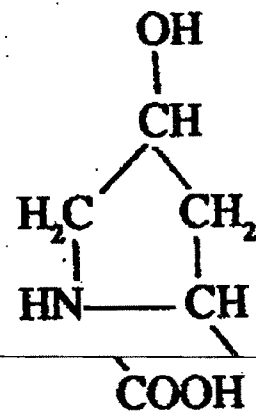
(i) Glutamic acid



(iv) Amino acids containing pyrrolidine ring,



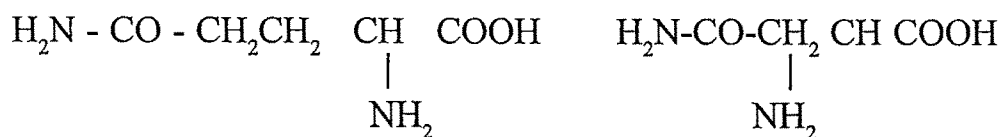
19. [ ] ne



20. [ ] oxyproline

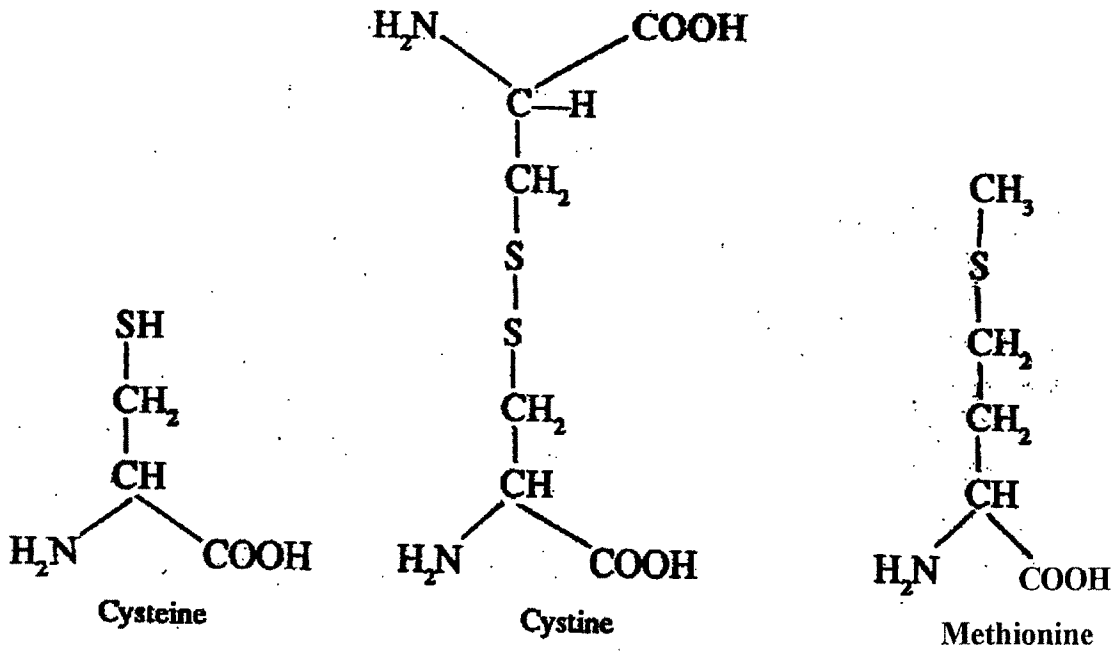
Properties of Amino Acids

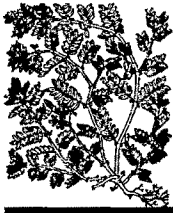
- (v) Two amides, asparagine and glutamine are common in living systems. Plants, the amides are stored in the seeds as reserved form of nitrogen,



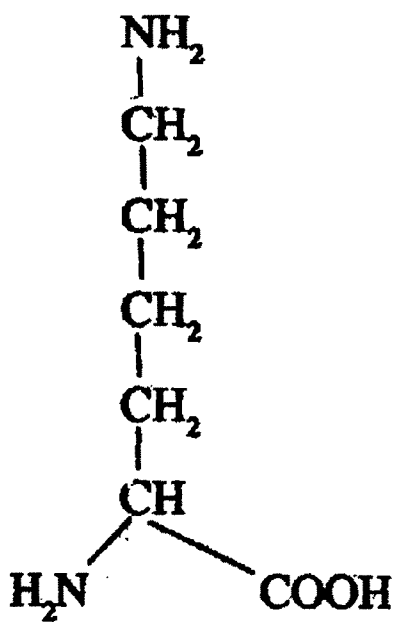


(vi) Sulphur containing amino acids,

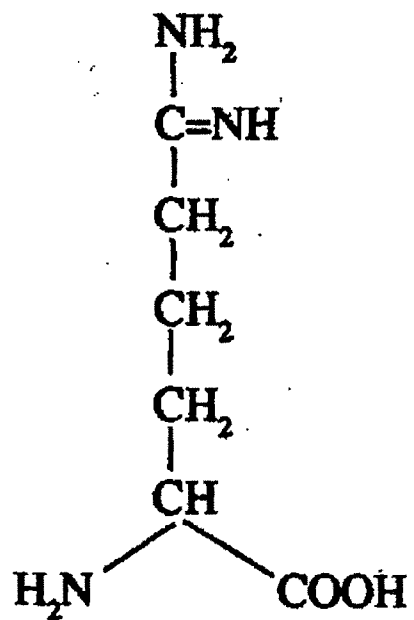




**E. Amino acids containing basic side chains,**



Lysine



Arginine

