

جامعة الانبار

كلية : الصيدلة

قسم : فرع العلوم المختبرية السريرية

اسم المادة باللغة العربية: الكيمياء الحياتية

اسم المادة باللغة الإنكليزية: Biochemistry I

المرحلة: الثالثة

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عنوان المحاضرة باللغة العربية: مقدمة عن البروتينات

عنوان المحاضرة باللغة الإنكليزية: Introduction to proteins



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practical lab. (1) (proteins)

proteins

- They are complex organic materials with high molecular weights consisting of basic elements: (**H, N, O, C**) and also contain: (**Fe, S, P, Zn**).
- Proteins are the main component of both animal and plant tissues and cells in terms of structure and function. Where protein is the main component of the human body, as it represents about 20% of the body weight, as muscles, connective tissues, bones, blood, skin, nails, hormones and enzymes are all based on protein.

Classification of proteins

- **Classified depending on composition :-**



(Simple Proteins)



(Conjugate proteins)

- **Classified depending on shape:-**

(Globular proteins)

(Fibrous proteins)

1-Simple Proteins

- Its types are classified on the basis of their **solubility**, include the following types:-
 - **Protamins**
 - **Albumins**
 - **Globulis**
 - **Prolamines**
 - **Scleroproteins**
 - **Keratin**
 - **Collagen**
 - **Elastin**

2- Conjugate Proteins

- They are proteins attached to non-protein substances such as sugars, fats and minerals.
- **Includes the following types :-**
- **Phosphoproteins**
- **Glycoproteins**
- **Chromoproteins such as Hemoglobin, chlorophyll**
- **Lipoproteins**
- **Nucleoproteins**

Classified depending on shape:-

- **Globular proteins:-**

- They are **spherical** or **oval-shaped** proteins that dissolve easily in water and are characterized by their abundance of wrapping, forming **spherical shapes** such as **albumin**, **globulin** and **protamine**.

- **Fibrous proteins:-**

- They are **long** or **needle-shaped** proteins and are insoluble in water and resist the action of enzymes that break down proteins. **They are of three types: keratin, collagen and elastin.**

Amino acids

- It is the smallest building block in protein synthesis.
- They are organic acids that contain groups (**amine and carboxyl**).
- **Characteristics of amino acids:-**
 - Dissolve in **water**.
 - Does not dissolve with **ether**.
 - Little soluble with **alcohol**.
 - Solid compounds with high melting points.

Classification of amino acids

- **Aliphatic:** Glycine, Alanine, Valine, Leucine, Isoleucine, Serine, Threonine.
- **Aromatics:** Phenylalanine, Tyrosine.
- **Sulfur containing:** Cysteine, Cystine, Methionine .
- **Heterocyclic :** Proline, Histidine, Hydroxyproline.

thank you for
listening

