

Advanced Structured Materials

Dilipkumar Pal

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Bioactive Natural Products for Pharmaceutical Applications

 Springer

Editors

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17. D Pal A P. Saha

Chapter 23 Protein and Enzymes Isolated from Plant Sources and Their Utilization in Pharmaceutical Field

Om Prakash Panda, Sitansu Sekhar Nanda, Dong Kee Yi,
Dilipkumar Pal, and Souvik Mukherjee

Abstract For transporting out original B^D_Y functions, minerals, V^i_T , carbohydrates, p^R_t and fibres necessitated, received from animal or P^l_T sources or both. p^R_t reckoned as important compounds among all nutrients for the $H^u_M B^D_Y$ because they facilitated in cells to build up and tissues repair in the B^D_Y . The B^D_Y used p^R_t for energy production in the shortage of carbohydrates and fats, is essential for the B^L_d of M^{us}_L mass. An active E^z_m is extracted from any living organism. Sources of E^z_m are fungi, yeast, bacteria, animals and P^l_T . A very much larger number of E^z_m is found its use in diagnosis and chemical analysis. Non-microbial sources provided a larger proportion of enzyme. E^z_m prevailed from P^l_T sources are bromelain, actinidin, ficin, α -amylase-amylase, papain, $L_{ip}^{OX}_{se}$. Application of E^z_m finds its way in industries for food and beverage processing, animal feed, detergents biosensors, Pharmaceuticals, wastewater treatment and recent biofuels.

Keywords Protein · Nutrient building muscle mass · Enzyme · Chemical analysis · Chemical diagnosis · Bromelanin · Ficin · Lipooxygenase

Abbreviations

| | |
|------------|------------|
| A^B_{LM} | Albumins |
| A^a_m | Amino acid |
| B^D_Y | Body |
| B^L_d | Building |
| C^{Nj}_T | Conjugated |
| D^l_{se} | Diseases |
| E^z_m | Enzymes |

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| | |
|----------------------|--------------|
| $F_R^b{}^s$ | Fibrous |
| H_{IS}^{td} | Histidine |
| H_M^u | Human |
| I_{SL}^c | Isoleucine |
| L^c | Leucine |
| $L_{ip}^{OX}{}_{sc}$ | Lipoxygenase |
| M_L^{us} | Muscles |
| P_E^{pt} | Peptide |
| P_T^l | Plants |
| p_t^R | Proteins |
| R_e^{at} | Reactions |
| S_e^D | Seeds |
| S_{ys}^T | System |
| V_L^a | Valine |
| V_T^i | Vitamin |

23.1 Introduction

Proteins (p_t^R) are the most abundant organic molecules of the living system (S_{ys}^T). The name protein is derived from the Greek word "proteios" meaning holding the first place. In 1838 the Dutch chemist Mulder used the term p_t^R to denote the high molecular weight nitrogen-rich and most abundant substances present in animals and plants (P_T^l). The body (B_Y^D) regularly needs nutrients for carrying out original B_Y^D functions, among these, p_t^R are the most important compounds because they aid in building (B_u^{Ld}) cells and tissues for a human (H_M^u) B_Y^D . A high p_t^R rich diet is needed for B_u^{Ld} B_Y^D or muscles (M_L^{us}). If the B_Y^D deficiencies in fat and carbohydrates, it creates energy production by using p_t^R as they are requisite for M_L^{us} mass B_u^{Ld} M_L^{us} . It reduces the long polymer chain of p_t^R from the amino acid (A_m^a) monomer. The A_m^a monomers is coupled with the peptide (P_E^{pt}) bonds between the amino and carboxyl groups. It is applied in p_t^R in industry and in the H_M^u B_Y^D . So, an effort produced to review on enzymes and p_t^R and their pharmaceutical application.

23.1.1 Classification of p_t^R

Based on the structure, composition, shape and solubility of A_m^a , p_t^R are assorted into following classes: simple, fibrous ($F_R^b{}^s$), conjugated ($C_o^{Nj}{}_T$) and derived p_t^R . Simple p_t^R are two types such as (a) Globular p_t^R (Albumins ($A_L^{B_M}$), Globulins, Glutelins, Histones, Globins, Protamines, and Prolamins etc.), (b) $F_R^b{}^s$ p_t^R (Collagens, Elastin, and Keratins etc.). The example of $C_o^{Nj}{}_T$ p_t^R is Nucleo, Glyco,