

stable isotopes to assess amino acid metabolism, whole body protein kinetics and protein metabolism in specific tissues are discussed. Cells take up amino acids, how they do this also explained. Amino acids are the building blocks for protein synthesis and play vital roles in neurotransmission, production and storage of metabolic energy, nitrogen metabolism and synthesis of hormones, purine and pyrimidine nucleotides, and glutathione.

Part two concentrates on physiology and section A focuses on metabolism and details amino acid metabolism, gluconeogenesis and ketogenesis from amino acids. ureagenesis and ammoniogenesis are explained. Regulation of carbonyl-phosphate synthase, transport of ornithine, citrulline and Aspartate across the mitochondrial membrane, urea synthesis and pH homeostasis, the periportal/pericentral glutamine cycle, metabolite channelling and urea synthesis, interaction of fatty acids with amino acids metabolism and glucose with urea synthesis, cell hydration and urea synthesis are discussed. Branched-chain amino acids metabolism is also described. Followed by details on the glutamate crossway, arginine and glutamine metabolism. Section B is titled 'Control of and by amino acids' which details the physiological role of insulin and amino acid catabolism and protein turnover. How metabolism of amino acids is controlled by counter regulatory hormones is discussed, where plasma concentration of amino acid, muscle free amino acids and protein metabolism are explained. Nitric oxide, the biology, physiology and pathophysiology is all presented in great detail. The actions of glucose and fat on protein metabolism, mechanisms of nitrogen sparing by glucose and lipids and effects of ketone bodies and fatty acid chain length on amino acid metabolism are all explained. Followed by details on signalling of amino acids and the control of protein synthesis, which is followed by explaining the control of proteolysis. the anabolic effects and signalling pathways triggered by amino acids in the liver are detailed. The immune system protects the body from pathogenic invaders, immune function and amino acids are discussed and how amino acids can stimulate insulin secretion.

Part three is concerned with amino acid metabolism in disease and discusses the effect of cancer on metabolism of proteins and amino acids, the effects on protein and amino acid metabolism by diabetes mellitus, acidosis, age-related scaropenia, gastrointestinal and liver disease is also discussed.

Part four explains the requirements of amino acids and is concerned with the importance of amino acids in adults, the neonatal requirements, in the elderly and in sport.

Part five is concerned with the supply of amino acids in diseases. Section A focuses on the qualitative and quantitative aspects. The amino acid intake by the parental route, nitrogen supply in enteral nutrition, branched-chain amino and keto acids in renal failure, enteral nutrition and glutamine-supplemented diets are all discussed. The uses of arginine in clinical practice are described well. Glutamine, a major element of amino acids and glutamine containing dipeptides are all discussed. The physical and chemical properties of ornithine  $\alpha$ -ketoglutarate and action of ornithine

$\alpha$ -ketoglutarate in surgical and trauma patients is discussed and the mechanism of ornithine  $\alpha$ -ketoglutarate action is also explained. The need of amino acids in patients with catabolic illnesses are explained. Sulphur containing-amino acids, most important being Methionine, cysteine and taurine, and glutathione, their metabolism is described in health and disease then further is discussed their supply in diseases. There is a requirement of amino acids in cancer, the growth of the tumour and how it effects the plasma acid profile and nutritional therapy in cancer patients is all discussed. The book explains acute renal failure and amino acid solutions for it. amino acids support gut function and morphology and these are discussed for in the mucosa, immune system and vasculature. Section C is concerned with nutraceuticals and discusses cardiovascular diseases and L-arginine-enriched diets, the biochemical aspects are explained. Then finally taurine homeostasis and its importance for physiological functions are explained.

In conclusion the book explains excellently the metabolism of amino acids and discusses it for different health and nutritional conditions. This book will be found very useful for persons carrying out research in this field.

Rajdeep K. Sandhu

John F. Kennedy\*

*Chembiotech Laboratories, Institute of Research & Development, University of Birmingham, Research Park, Birmingham B15 2Q5, UK*

Available online 2 February 2006

---

\* Corresponding author

doi:10.1016/j.carbpol.2005.09.013

---

**A. van Amerongen, D. Barug, M. Lauwaars, Rapid Methods for Biological and Chemical Contaminants in Food and Feed, Wageningen Academic Publishers, The Netherlands, 2005 (416pp., €85, ISBN 9076998531)**

Food and feed safety is extremely important and rapid methods ensure that safety is achieved and play an important role in microbiological and chemical applications in a food industry. Rapid methods allow quick analysis of food and feed and can be used in detection of unwanted organisms in food.

*Rapid Methods; for Biological and Chemical Contaminants in Food and Feed* opens with explaining why rapid testing is used. Rapid tests are fast, cheap and easy methods to use. A number of microbial pathogens can appear in food products, rapid testing can detect these microbial pathogens and quantify them. Chemical hazards can appear in the food-supply chain, rapid tests can be used to detect these too. Rapid tests are used often in the food industry in the identification of veterinary drug remains in milk, meat and eggs. The markets

for rapid testing are presented. The next section outlines the types of validation and certification that can be used for food microbiological testing, and needs for them. Two types of methods of validation are; in-house method validation, external-third party validation and both of these are explained. Preparing and analysing samples, and how improvements can be made when sampling have been discussed, specifically based on mycotoxins, pesticides and genetically modified food. Feed and food legislation in EU sets certain standards that must be met when carrying out rapid methods. The quality and safety of the food supply must be maintained. Pathogens can be found in food and water, there are advanced biosensors, which detect and measure the pathogens, and these are discussed. Also the book details on detection of bacteria, methods where black colloidal carbon particles generate a signal when detecting the presence of certain organisms. *Listeria monocytogenes* is discussed for which is explained rapid nucleic acid detection method for certain bacteria. Noroviruses, which cause non-bacterial gastroenteritis in adults are found in food and water, their isolation and quantification is explained. For safe agriculture, horticulture and agro food processing quality control and monitoring is essential, to do so novel molecular and biochemical techniques are used and in this book are explained for plant pathogens and plant-related human pathogens. Also discussed are the rapid detection methods for GMO's where developments and harmonisation in the EU and protein-based GMO detection methods are described. Allergens are found in food, the immune system mistakes food for a harmful foreign substance and leads to an allergic reaction. Methods by which allergens can be detected are mentioned and described, ELISA, PCR and multi allergen-screening assay. Feeding animals with proteins from same species was banned by Animal By-Product, in 2002. Immunochemical and PCR assays are discussed as possible rapid methods for species identifications. The techniques were tested and the results are presented. The policy on characterisation of antibodies used in immunochemical methods of analysis for mycotoxins and phycotoxins is outlined, explaining the limitations for the methods and are discussed for studies carried out for AOAC INTERNATIONAL. This section is followed by discussion on rapid detection method for marine toxins. The book presents a personal view on the rapid detection of bacterial food-poisoning toxins and discusses illnesses caused by food-borne bacteria. Also discussed are the uses on enzyme sensor array for the determination three biogenic amines, histamine, tyramine and putrescine. Followed by this is the use and need for rapid assays to detect the presence of veterinary drug residues. A very important part of consumer safety is testing raw materials and the end product, these tests must be fast and cost-efficient and discussed are rapid immunoassays to detect pesticides. Dioxins in food and feed must be identified, rapid methods developed for their identification are described. Automated multi-channel surface plasmon resonance (SPR) biosensors have been developed for rapid analysis, these are discussed for detection of

sulfonamide assays. Wines can be contaminated by chlorophenols and chloroanisoles, immunodiagnosics techniques are explained and can be used to detect these contaminants and reduce contamination of wines by them. EU research into future developments for at- and on-line sensors in food production, as quality control is vital in the food industry, food sensor types, sensor markets and the conclusions from the EU food research are all presented. Detecting biological and chemical contaminants can be done by computerised systems, which are now a part of laboratory processes. Discussed is the management of data electronically; legislation—the standards that must be met by use of these computerised systems and method validation and automated system validation. Finally the book concludes with Nanotechnology in food analysis and it uses in the future. Nanotechnology is based on nano-science and aims to develop new products and processes to nanoscale dimensions. In food industry nanotechnology already plays a role in manufacturing and testing of products.

This book uses graphs, tables and illustrations to support the detailed information presented in the text, explains some of the rapid methods that can be carried out and details materials, methods and presents results and would be very useful for persons working in food industries, concentrating on rapid analysis on food and feed.

Rajdeep K. Sandhu\*

John F. Kennedy

*Chembiotech Laboratories,*

*Institute of Research & Development,*

*University of Birmingham Research Park,*

*Vincent Drive, Birmingham B15 2Q6, UK*

Available online 2 February 2006

---

\* Corresponding author

doi:10.1016/j.carbpol.2005.09.012

---

**Laurier L. Schramm, Emulsions, Foams, and Suspensions; Fundamentals and Applications, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, 2005 (xv + 448pp., €149, ISBN 3-527-30743-5)**

Although at first thought one might separate into different categories emulsions, foams, and suspensions they are in fact all related through colloidal dispersions. A colloidal dispersion consists of a system, where finely divided droplets, particles, bubbles are distributed in another phase without dissolution. *Emulsions, Foams, and Suspensions; Fundamentals and Applications* concentrates on the three most common types of colloidal dispersions; emulsions, foams, and suspensions, which occur in many fields such as foods, geology, medicine, petroleum products and others which are discussed in the second half of this book.