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Lisa Rapport and Brain Lockwood, **Nutraceuticals**

London: Pharmaceutical Press, 2002. 163 pages
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Reviewed by Alekha K. Dash, Ph.D., Associate Professor, Department of Pharmacy Sciences, School Of Pharmacy & Health Professions, Creighton University, Omaha, NE 68178, USA

The field of nutraceuticals is diffuse and hard to define exactly. Many attempts including the American Association of Pharmaceutical Scientists Dietary Supplement Forum held on June 28–30, 2000 in Washington, DC have been made to define and distinguish the terms: dietary supplement, nutritional supplement, nutraceutical and functional foods. Nutraceuticals in general are considered as any nutritional component derived from a food or part of a food and presented in a pharmaceutical dosage form, which has some medical and health benefits. This industry is currently growing at a very rapid pace. As an example, in 1996, six and half billion dollars were spent for dietary supplements alone in the USA. However, in the year 2000 this was raised to sixteen billion. Various surveys that have been reported on the consumer's attitude towards this growing market clearly indicate that consumers are not very aware of the scientific evidence that supports their claim. Therefore, it is absolutely important that the consumers should have access to up-to-date and scientific information on these products before their unbiased selection over the counter.

This book has been put together by two well-experienced pharmacists whose major objective is to educate the consumers by providing the most recent scientific information available for some nutraceuticals in layman's terms. I will commend the authors for achieving their goal. The abbreviations that are provided at the beginning of this book are very helpful. This book consists of ten chapters. Excluding the first and last chapters, the remaining eight chapters represent the review of eight individual nutraceuticals, along with the results and implications of research data published to date. The main focus of this book is to include supplements which are obtained from a food source, but are sold as isolated, purified components with some health benefits. Chapter 1 deals with the introduction and has provided a concise overview of consumer

attitudes toward nutraceuticals and various definitions and regulatory issues pertaining to nutraceuticals in several countries. Chapter 2 reviews the safety and effectiveness of glucosamine in the treatment of degenerative joint disease as compared to analgesics. The authors have done an excellent job in providing information which is scientifically sound and easy to understand. The conclusion section is very concise and acts as a fact sheet for the consumer. The usefulness of octacosanol as a dietary supplement is described in the next chapter. The authors have clearly indicated that the usefulness of this compound as an ergogenic aid has yet to be proven. However, some clinical data suggest it has an effect on lipid metabolism and a cholesterol-lowering effect, as well as an effect on platelet functions. The health benefits of proanthocyanidins obtained from grape products are extensively reviewed in Chapter 4. Even though the antioxidant properties of this group of phytochemicals has been established both *in vitro* as well as *in vivo*, large-scale human studies are still lacking. The authors have pointed out that more research is needed to evaluate its absorption, metabolism and bioavailability in humans. The following section deals with the phytochemical lycopene and its activity in several disease states, including cancer and cardiovascular disease. Although animal and cell culture studies have confirmed its health benefits, lack of enough human studies value these claims suggestive rather conclusive. Chapter 6 deals with carnitine and the usefulness of the naturally occurring L-isomer in carnitine deficiency. Its use as an ergogenic aid in heart disease and other clinical conditions has been concisely presented with up-to-date references. The health benefits of flaxseed and flaxseed oil in the prevention of hypercholesterolaemia-induced heart attacks and strokes, and protection against hormone-related cancer are provided in Chapter 7. Melatonin, the primary hormone secreted by the pineal gland and its health benefits and contraindications, along with the side effects, are presented very precisely in Chapter 8. The conclusion section of this chapter provides very informative and useful suggestions to the consumer. The last section on individual nutraceuticals includes ornithine alpha ketoglutarate (OKG). This supplement is widely used by athletes and bodybuilders as a pharmacological nutrient. Its possible inclusion in standard feed for hospitalized and chronically ill patients in the near future is also discussed. The authors of this book have concluded with a very positive note that the nutraceutical market is undoubtedly very large and growing, which will have

positive economical impact on society at large. They have also provided a very important take-home message to the consumer, "Do not try dietary supplements for many indications believing them to be safer than synthetic substances; this presumption of safety is erroneous." Finally, the authors have requested that research and development scientists working in this area provide adequate and accurate scientific information on nutraceuticals to the health professionals and the consumers.

Although this book is excellent in providing first-hand information on eight different nutraceuticals, it does not cover all the nutraceuticals currently in use. I was expect-

ing to see more nutraceuticals in this book including: soybean isoflavones and protein, sphingolipids, tocotrienols, dietary fibres and others. Secondly, in the preface section, the authors have acknowledged the omission of amino acids in the book. However, in reality this was not the case. It would have been more appropriate to include a chapter on creatine monohydrate in this book. Overall this is a very well written book, which provides a comprehensive review on some important nutraceuticals. I will highly recommend this as a reference book for health care professionals, the public, and in particular for those who work in the field of nutraceuticals.

Stephen M. Stahl, **Essential Psychopharmacology of Antipsychotics and Mood Stabilisers**

Cambridge University Press, July 2002. 142 pages

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Reviewed by J.C. Neill, Bradford, England

The books by Stephen Stahl in his Essential Psychopharmacology series have very neatly filled a gap in psychopharmacology literature in the provision of a colourful, easy to read overview of the subject matter. His most recent addition to this series is no exception. However, it is important for those considering purchasing this book to point out that most of the contents have been covered in two earlier books by the same author. The overview of schizophrenia and actions of antipsychotic drugs has been previously published in the earlier book "Essential Psychopharmacology of Antipsychotics" and part of the section on anticonvulsants as mood stabilisers was covered in "Essential Psychopharmacology of Depression and Bipolar Disorder". Although the material has been updated in places and there is *some* new information, there is hardly enough to merit purchase of this book by the reader already possessing the previous books. Yet, for the reader who is new to these books or subject area, the combination of antipsychotics and mood stabilisers together with a section on dopamine partial agonists makes this a particularly timely publication and a useful purchase.

The preface for the book by the author explains that its purpose is to provide an overview of the subject area and the more advanced reader is advised to use this text in conjunction with more sophisticated material such as scientific journal articles. As long as the reader is aware of this and is not expecting in depth discussion of mechanisms of antipsychotic drug action, this book will be of considerable benefit. The first chapter is largely a repetition of the second edition and gives a useful review of the psycho- and neuropathology of schizophrenia. The first half of Chapter 2 deals with the pharmacology of antipsychotic drugs and compares the mechanism of action of classical drugs such as haloperidol with the atypical agents: risperidone, olanzapine, clozapine, quetiapine and ziprasidone. Much of this is repeated from his earlier book, and it is not until half way through the second of the two chapters that the new material emerges.

The section on the pharmacology of antipsychotic drugs in Chapter 2 is clearly described and attempts to explain in a simplified manner the effects of what Stahl himself points out are drugs with "some of the most complex mixtures of pharmacologic properties in psychopharmacology". I found the diagrams of the antipsychotics (showing the different receptor profile for each one) to be particularly useful; such diagrams are also included for the anticonvulsants later in this chapter. Throughout the book, Stahl makes use of a language that is clear, easy to understand and thankfully free of jargon, eg in Chapter 2 he talks about "a tug of war" between dopamine release over dopamine blockade to explain certain effects of atypical antipsychotics, which presents a rather interesting visual image. The book is full of phrases such as these and marvellous diagrams, which is one of the particular strengths of this book, and of the series of books by Stephen Stahl in general. Such features make the book easily accessible to students and more experienced readers alike, however one of the inevitable consequences of this approach is that certain critical issues are not covered in enough detail.

Scant mention is made of the side effects of weight gain and hyperprolactinaemia produced by certain antipsychotics. These are important issues and will have considerable impact on patient compliance and morbidity. There are several instances where certain drug effects cannot be explained by existing concepts, thus risperidone induces hyperprolactinaemia but is a serotonin–dopamine receptor antagonist rather than a selective dopamine antagonist; loxapine does not induce weight gain but acts as an antagonist at H1 receptors. It is suggested in Chapter 2 that hyperprolactinaemia may play a role in the induction of weight gain. This is a particularly important idea that deserves further exploration. One useful addition to this section could have been further exploration of the effects of these drugs on cognitive deficits in schizophrenia, as this is a core feature of the disorder and a major target for future drug development. Overall however, the lack of depth in certain areas is a minor criticism.

The section on dopamine partial agonists and mood stabilisers is particularly timely for two reasons: recent development of the novel antipsychotic drug aripiprazole and the increasing evidence to support the use of anticonvulsant agents for the treatment of bipolar disorder and certain aspects of schizophrenia. For the reader interested in this, and novel therapies for schizophrenia, this part of the book will prove the most interesting. The section on

the mechanism of action of anticonvulsants as mood stabilisers is carefully and clearly explained and the diagrams showing their pharmacological activity and mechanism of action generally enhance the reader's understanding of this subject. There are, however, some diagrams I found to be less helpful which may not enhance understanding any more than the text. Some further information regarding the psychopathology of bipolar disorder could have been a worthwhile addition.

This book will be particularly useful for undergraduate students studying medicine and related disciplines, for postgraduate students working in this field of research and for health professionals with experience in psychiatric

illness. The book provides a useful teaching tool for academics and, due to its competitive price, it is particularly accessible to undergraduate and postgraduate students with ever-decreasing financial budgets. I generally recommend the books in the Essential Psychopharmacology series to my PhD students at the start of their studies and this book will be no exception.

Dr Jo Neill is Senior Lecturer in Pharmacology in Bradford School of Pharmacy at The University of Bradford where she is actively engaged in research into mechanisms of antipsychotic drug action.