

## BOOK REVIEWS

which health and diseases are based. In Unani, disease are divided into simple and complex, and diagnosis is based on examination of the pulse, urine and stools. Treatment is based on the temperament and balance of the elements, and influence of the environment on the body is well understood in the Unani system. According to classical Unani literature, the process of ageing starts at birth and ends with death. In Unani healthcare there is considerable discussion on care of pregnant and nursing mothers. It provides detailed description of prenatal and postnatal care.

The author provides a description of diseases and modes of treatment of children in the Unani system of medicine, and suggests that in the treatment of infants, the first consideration should be the management of wet nurse. In Unani healthcare system, constipation, diarrhoea, ascent of vapours to the heart, disturbances of the respiratory system and abnormalities of temperament are corrected by regulating the food and drinks of the women seeking baby.

In explaining the basic principles of Siddha medicine and its developmental approach for childcare, the author highlights the importance of humour and yoga as two prominent medical and meditational practices. She argues that *Charaka Samhita* and *Sushruta Samhita* are the fundament texts in Siddha healthcare system. Siddha medicine comprises alchemy, philosophy, yoga, tantra and astrology along with medicine. It believes that disease is caused when normal equilibrium of humans is disturbed when the humour system is affected. Use of metals and minerals predominates in Siddha medicine and drugs are categorized as thevaram (herbal production), thathu (inorganic substances), and jangamam (animal products). According to the author, balavagadam is a branch of Siddha medicine that deals with diseases of children; it believes on healthy seeds for the entire life that yield healthy generation.

Tibetan medicine, also known as Buddhist medicine, is a healthy mix of three systems of medicine, namely Bon religion, Ayurveda and Chinese. The fundamental medicinal traits of Tibetan medicine are Tantra and oral instruction Tantra which includes dietary guidance, lifestyle, behavioural counselling, medications and therapies. With regard to childcare, in Tibetan medicine, the author beginning with the development of the

foetus, followed by care of infants and children, and finally deals with minor and major childhood disorders. In Tibetan medicine, there are three parts in child care; the first is care of children up to one year, the second covers general pediatric disorders, and the third part deals with disorders caused by evil spirits.

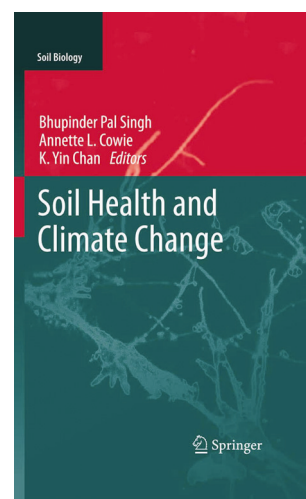
In the concluding part of the book, the author provides a comparative account of four traditional, indigenous healthcare systems and their application in the field of child healthcare, and also some illuminating observations having substantial implications for theory, practice and research on child healthcare system. She argues that gender discrimination in healthcare seems to be a part of the numerous cultural practices. However, extraordinary status given to the expectant mother and nursing mother in Ayurveda forms the core of the very advanced healthcare system provided to infants way ahead of our times. On the other hand, Unani healthcare system is distinct from other systems, partly due to its Greek origin and partly because of the adoption of healing practices from Ayurveda. Historically, Siddha medicine has been considered as the oldest; yet it has a strong link with Ayurveda and Tantric practices on the one hand, and Chinese medicine on the other. Its uniqueness lies in its search for immortality and alchemy. Finally, despite the treacherous landscape, high altitude and extremes of climatic conditions, Tibetans have been hospitable hosts to physicians, scholars and spiritual leaders from the West, India and China. Their system of medicine is a mix of many systems of medicine. The basic principles are the same as in the other systems for treatment of adults, but for the treatment of children, the principles differ vastly. To conclude, as the author argues, child care is the most indigenous health system that has to draw strength from folk culture beliefs and health practices. Thus, our future exploration should examine child care from multiple perspectives of sociology, anthropology, developmental psychology and preferred healthy practices.

This book succinctly captures the debates and discussions on four indigenous healthcare systems and provides some illuminating explanations of their applications in child healthcare practices from a comparative perspective. The comparative methodological explorations at the

end further demonstrate the strength and depth of this book and authors' serious preoccupation from a methodological standpoint. However, the book lacks a subject index which would have been useful for the reader. Undoubtedly, the book will be an asset to child psychologists, clinical psychologists, child-care specialists, medical practitioners, practitioners of indigenous medicine and others who are interested in making sense of India's indigenous health care system and its modern-day applications.

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**Soil Health and Climate Change.** Bhupinder Pal Singh, Annette L. Cowie and K. Yin Chan (eds). Springer, Berlin. 2011, 414 pp. ISBN 978-3-642-20255-1, doi:10.1007/978-3-642-20256-8. e-Book Price: 202.29€; Hardcover: 239.00€; Softcover 239.00€.

The book under review covers various aspects of soil health and climate change. Soil health is strongly linked with human health and environment, but the relationship between soil health, food quality and human health is less understood<sup>1</sup>. A great variety of microorganisms of different sizes, behaviour and physiology are found in healthy soil<sup>2</sup>. The health of the soil is highly influenced by soil degradation and climate change. Healthy soil

is essential for sustainable agriculture to fulfil the need of the growing population. Various agricultural policies and technologies have been adapted for higher crop production. Furthermore, extensive use of chemical fertilizers in modern agricultural practices and expansion of industry enhance the concentration of greenhouse gases in the atmosphere<sup>3</sup>. The release of reactive nitrogen by industries and fossil fuel burning have increased nitrogen concentration in the atmosphere. Biological N<sub>2</sub> fixation has helped maintain adequate availability of nitrogen for crop plants, thereby ensuring ample production of food and fibre. Soil degradation, generally associated with agricultural practices, brings a series of negative impacts on the environment, and has become a threat to sustainable agriculture and soil quality. The quality of food, e.g. micronutrients, proteins, minerals and essential amino acids is decreasing. Due to soil degradation, microbial diversity rapidly declines, which is responsible for reduced soil health and fertility. Soil responses to climate change are complex, and there are many uncertainties and unresolved issues. Soils have the capacity to modify and adapt to certain limits of soil health and climate change. Physical, chemical and biological health are the three major components of soil fertility. The plants–microbe association may enhance food production and also reduce the impact of climate change<sup>4</sup>.

The book consists of four sections and 16 chapters dealing with soil health and climate change. Chapter 1 highlights an advanced knowledge of agronomic strategies of soil health management and soil resilience. Soil health has three major components – physical, chemical and biological health. Soil health and climate change are related to human health, because they affect vector borne diseases in humans. Chapter 2 covers the soil health indicators and soil health measurements. The soil organic matter (SOM), carbon and nitrogen cycling, microbial fauna and flora diversity are highly affected by climate change. Chapters 3 and 4 give a detailed account of soil structure, physical and chemical properties of the soil,

and direct and indirect impact of climate change on soil organisms. Climate change has a negative consequence on soil structure, fertility and food quality. Soil has the ability to modify and ameliorate its acidity and ion toxicity. pH of the soil dominantly affects the solubility and potential of ion toxicity. Chapter 5 specially discusses the effect of changing environment on SOM and soil organic carbon (SOC), pool and management practices to restore, maintain and increase/decrease SOC turnover. Chapter 6 highlights the importance of nitrogen in the biosphere and its interaction with the carbon cycle in nature related to climate change. Use of nitrogen in agro-ecosystem as a fertilizer and its management for future climate change are discussed. This chapter briefly discusses global significance of N<sub>2</sub>O emission on terrestrial and oceanic sources. Chapter 7 provides a brief account of soil respiration, its quantification, regulation and relation to global climate change. The chapter also covers regulation of soil respiration and effect of photosynthesis, temperature and soil moisture. Chapters 8 and 9 provide an account of soil health and soil biota. The soil biota plays an important role in global climate change. Microbial diversity has a direct impact on the production of greenhouse gases (GHGs), which are fundamental to geochemical cycles. Soil microbes also help in mitigation and adaptation to climate change. The traditional cropping patterns are a major source of GHG, carbon dioxide, methane and nitrous oxide production. Chapter 10 focuses on the intensification of pastoral agriculture, such as increased use of fertilizers, chemicals, and their impact on soil properties and GHG emission. Chapter 11 mainly focuses on how nitrogen transformation and carbon sequestration are affected by intensification of pastoral agriculture. Chapter 12 describes how direct and indirect effects of climate change affect forest productivity. Chapter 13 highlights about the case study of mine-site rehabilitation practices under changing climate and their effect on soil health and management. The properties and processes of the forest can directly or indirectly be affected by climate, pest

and pathogen. Chapter 14 discusses organic farming and its impact on soil properties, microbial biota, crop yield and emission of GHG. The organic farming systems are inherently ideal to cope with and adapt to climate change, and for the maintenance of soil health over conventional farming system. This cropping system helps reduce vulnerability to climate change. Chapters 15 and 16 highlight the properties of the soil to mitigate and adapt to climate change, and impact of bio-char on the physical, chemical and biological properties of soil. Bioenergy has the potential to mitigate and adapt climate change and its impact on soil health. If bioenergy production is to effectively contribute to climate change mitigation, adaptation and soil health, then it has a positive energy balance which can replace the use of fossil fuels for energy and potentially sequester carbon in biomass and soil.

Finally, this book compiles recent literature related to soil health and impact of climate change. It also focuses on soil attributes and how soil properties vary in response to climate. It covers land-use pattern and organic farming, and discusses the impact of climate change and possible management approaches. This book is highly useful for a wide spectrum of readers, including scientists, researchers, teachers and students.

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