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Out of Nature. Why Drugs from Plants Matter to the Future of Humanity, Kara Rogers. University of Arizona Press, Tucson 2012, 216 pp., 8 b&w illustrations, bibliography index. 6.00 in x 9.00 in/ISBN: 978-0-8165-2969-8 (pb) US \$ 19.95

We must reconnect with nature, with the world that ultimately defines our existence and produces our foods and medicines (p. 5)

21 In the field of biodiversity research and ethnopharmacology few if any will have doubts about this statement by the 23 freelance science writer and senior editor of biomedical sciences at Encyclopaedia Britannica, Inc. We humans not 25 only depend on plants and other elements of the environment for our daily lives (Etkin, 1988), but these also offer a diverse 27 set of resources used as food, for building up our environment, and as it is most widely studied, as medicines. While all these 29 examples highlight the empirical importance of plants (Ortiz de Montellano, 1975), they are also crucial as symbolic 31 elements of life and death, a topic which has been a longstanding element in a wide range of academic disciplines (e.g. 33 Moerman, 1979).

As is evident from the quote at the beginning K Rogers' emphasis is on the broader science-based links and certainly less on local and traditional forms of connecting with nature. In this easy to read and very well argued book she explores the "Western" societies' relationship with the environment (or nature) and the relevance of plant-based natural products to drug discovery. This not seen in isolation but linked to the threats associated with the loss of biodiversity.

Using stories about drug development from natural sources 43 she discusses a wide range of biological and environmental and well as pharmacological topics. In a quote on the back cover Mark Merlin links the book to "ethnobotanical aspects 45 of people-landscape and people plant species relationships". However, this is exactly what the book is not about and 47 as such this statement is misleading. It is much more about 49 how humans in Western societies have made use of plants to develop medicines and not about the interdependence of 51 humans and plants especially in local and traditional societies, which remains the key focus of ethnobotany. The book covers 53 many of the core themes discussed today including the responsibilities arising from the Convention on Biological 55 Diversity (1992) and subsequent treaties. The book is not about 'ready to use' recipes on how to protect biodiversity, but 57 about the 'why'. Today 'nature' - the communities of plants, animals and microorganisms - does not sit in an economic 59 and political vacuum, but are essential for determining what actions need to be taken to assess, monitor and conserve them 61 (Heywood, 2011).

Also, it is not about the 'drug discovery pipeline' as such but about the importance of nature in this context. As such many of

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the 'downstream' aspects of drug development are not covered, but it is about what examples exist that allow us humans to use nature. In several of the cases she discusses a more detailed analysis would have been useful and would have provided a much stronger argument for her case. For example, she discusses the failed development of *Hoodia*. spp. into a medicine for use in obesity or diabetes (pp. 148–149), but does not address the complexity its development. It was first developed into a potential medicine (a 'drug') and later into a food supplement (i.e. with a much weaker or no medical claim). Ultimately, projects to develop it into a new food supplement were halted, mostly because of concerns in terms of safety (Blom et al., 2011). Similarly, one could have incorporated some of the more successful recent examples of drug discovery like peplin or galanthamine (Heinrich and Teoh, 2004; Heinrich, 2010).

93One of her key arguments centres on the exciting concept of
biophilia or in other words the innate human attraction to life
in the natural world. She argues that in order to reconnect to
nature we need to reawaken this drive and that this will be an
essential basis for conservation efforts and developing new
drugs. This is a fascinating point and certainly one well worth
supporting. However, how was it possible that 'we' discon-
nected to nature and in fact, who did (and who did not)
disconnect? Again, as an ethnopharmacologist one could have
envisioned several examples.93

103 It certainly is less of a book for an advanced (and enclosed) scholarly debate, but one would certainly hope that many 105 decision makers in industry, the societies of the world and politics engage with such a science-based analysis. It also is certainly 107 useful in some undergraduate courses providing examples for how to make use of biodiversity and on what strategies are 109 needed in order to achieve this. In her style she is very personal and engaging, and the use of stories makes the topics very 111 accessible. Her dedication to the topic is also shown by her beautiful drawings of plants and maps which illustrate some of 113 her key points. However, at the same time this personal style is also a limitation. Telling such stories does not as such provide 115 strategies to overcome these huge problems, and as such the book is a call but not a plan for action. 119

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Book review / Journal of Ethnopharmacology I (IIII) III-III Michael Heinrich* Q1 67 Heinrich, M., Teoh, H.L., 2004. Galanthamine from snowdrop-the development of a modern drug against Alzheimer's disease from local Caucasian knowledge. Centre for Pharmacognosy and Phytotherapy, Journal of Ethnopharmacology 92, 147-162. UCL School of Pharmacy, University of London, Heywood, V., 2011. Ethnopharmacology, food production, nutrition and biodiver-29-39 Brunswick Sq., London WC1N 1AX, UK sity conservation: towards a sustainable future for indigenous peoples. Journal of Ethnopharmacology 137, 1-15. *E-mail address:* michael.heinrich@pharmacv.ac.uk Moerman, D.E., 1979. The anthropology of symbolic healing. Current Anthropology 20, 59-80. Mooner Ortiz de Montellano, B., 1975. Empirical Aztec medicine. Science 188, 215-220.

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