

Animal Toxins: Facts and Protocols. Harve Rochat and Marie-France Martin-Eauclaire (eds). Birkhauser Verlag AG, P. O. Box 133, CH-4010 Basel, Switzerland. 2000. 384 pp. Price: SFr 98/DM 118.

Toxins are poisons. Poisonous molecules are weapons for a variety of animals, either for defence or for immobilization of the prey. Toxins are directive in character and are highly specific; because of this property these molecules have been used in understanding the intricate physiological processes such as nerve impulse transmission, channel functions, carcinogenesis and haemostasis. The book under review edited by Harve Rochat and Marie-France Martin-Eauclaire is an excellent compilation of facts and protocols from several experts in the field. The toxins are analogous to hormones in sensitivity and specificity. They act at pM and nM concentrations. They are harmless to the animals that make them, as they are synthesized and released from specific glands/tissues which are isolated from rest of the system. Mostly they are released as mixtures of analogous structures. Therefore their isolation, characterization and application have immensely helped mankind.

There are 20 articles contributed by 48 experts in the field. Toxins described in the first two chapters though from sea animals are, actually produced by micro-organisms. The synergistic cooperation existing between micro-organisms and the sea animals is evident. The saxitoxins and other toxins presented in the first article act on sodium channels. However, okadaic acid and microcystins are carcinogens. Most of the other articles have described peptide toxins from worms, insects, scorpions, snakes, sea anemones and spiders. A couple of chapters are devoted to the protocols for the synthesis of peptides by chemical and cloning procedures. Article nineteen is on snake venom phospholipases A₂, which are larger peptides and are unique toxins exhibiting multiple toxicities due to subtle structural variations. The last article deals with the polypeptides and proteins functioning in coagulation processes; also they are larger peptides.

Protocols involved in the detection and isolation of these toxins range from simple gel-permeation chromatography

to sophisticated affinity methods requiring specific antibodies. Family of peptides of similar size and sequence are always difficult to resolve. The procedure for the isolation and characterization of individual toxins is described with intricate details. The troubleshooting while applying the protocols is elaborated to help the workers in the field. Today, interest in this field of study is enormous, for example, during the thirteenth meeting of the International Society of Toxicology, held in Paris between 18 and 22 September 2000, majority of presentations were on peptide toxins affecting sodium and potassium channels. These peptides are small and show marked variations in their functions. Hence several analogous peptides are either chemically synthesized or prepared by cloning procedures, to study their structure-function relationship and to understand sensitive physiological processes. Studies on these peptides have extensively contributed to the classification and sub-classification of the channels affecting ion transport.

Now-a-days extracts containing toxins are directly fed into reverse phase HPLC or applied on capillary electrophoresis linked to mass-spectrometry for the isolation of toxins. This further emphasizes the importance and urgency in elaborating the mechanism of action of channel-modulating toxins. Therefore this book is published at an opportune time to benefit the investigators in the field.

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Amphibians and Reptiles of Madagascar and the Mascarene, Seychelles and Comoro Islands. Henkel, F.-W. and Schmidt, W. Krieger Publishing Company, P. O. Box 9542, Melbourne, Florida 32902, USA. English edn. 2000. 324 pp. Price: US \$64.50.

Field studies of amphibians and reptiles have been less popular throughout the

world than the study of birds and mammals. This is largely due to the cryptic habits of these animals and the lack of simple guides that aid in field identification of species. Characters used by taxonomists to identify amphibians and reptiles are best observed only after the specimens are killed or immobilized. This is the unfortunate consequence of (a) taxonomists working indoors on preserved museum specimens with little knowledge of their live appearance and habits and (b) some inherent traits in lower vertebrates which complicate field identification.

As a rule, amphibians and reptiles are more variable in morphology and habits than the other vertebrates. The range of colours, sizes and habits that they exhibit is often phenomenal. Further, these vertebrates, along with fishes, have the remarkable feature of maturing at a smaller size and continuing to grow while being reproductive, rendering characters such as size and colour, that are often reliably used in the field identification of many groups of animals, of limited use.

Conservation awareness, amateur interests and the ever-increasing restrictions on collecting and killing animals for the purpose of scientific studies have nevertheless necessitated well-illustrated field guides. While field guides with excellent photographs have been available for quite sometime now in the developed Western countries, such tools are a recent trend in the developing and tropical countries. Even within this trend, photo-guides are often restricted to flowers, butterflies, birds and mammals. Photoguides dedicated to herpetofauna – amphibians and reptiles, are very few.

The book under review is a wonderfully illustrated photo-guide to the herpetofauna of Madagascar and the adjacent islands in the Indian Ocean. Originally published in German and translated into English, it covers 240 species of amphibians and reptiles, including tortoises, a crocodile, lizards and snakes. Although the described species amount to less than 60 per cent of the herpetofauna of these islands, this is a very good aid to the field study of amphibians and reptiles in one of the megadiversity countries of the world.

The book consists of a simple introduction highlighting the geology, climate and biodiversity of the islands.