

Application of Circular Dichroism and Optical Rotation for Stereochemical Analysis of Natural Products

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Conventional electronic circular dichroism (ECD) as well as optical rotation (OR) are not only one of the earliest and most powerful chiroptical methods for determining absolute configurations (AC) in solution, but they are also methods that have rapidly improved in term of better data acquisition and analysis. Furthermore, in the past two decades the *ab initio* methodologies for theoretical simulations of chiroptical properties have made a tremendous progress. The latter has greatly improved the interpretation of experimental ECD and OR spectra, as well as of more recently accessible vibrational CD data, towards determination of AC of even more structurally complex natural products. The lecture will highlight some basic concepts in ECD, VCD and OR methods regarding their applications for determination of AC, as well as the emerging awareness regarding the advantages of using simultaneously more than one chiroptical method for AC analysis. We will also discuss some recent stereochemical studies on AC of structurally diverse natural products. The examples will include the polyether marine toxin *Gymnocin B*, the cruciferous phytoalexin *Brasicanal C*, the alkaloid *Actinophyllic acid*, the irregular diterpene *Anisotomenoic acid*, some fungal and plant metabolites, such as, *Scytolide*, *Phyllostin* and *Oxysporone*, and some acyclic alcohols and aminoalcohols.

REFERENCE

- [1] Berova N, Ellestad GA, Harada N. Modern methods in natural product chemistry: characterization by circular dichroism spectroscopy. In: Mander L, Lui HW, Eds. Comprehensive natural products II chemistry and biology. Oxford: Elsevier 2010; 9: pp. 91-146.
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