

# Polyphenols, Ethnomedicine, and Benefit Sharing

## Authors

Herbert Kolodziej<sup>1</sup>, Ann Elizabeth Hagerman<sup>2</sup>

## Affiliations

<sup>1</sup> Institute of Pharmacy, Pharmaceutical Biology, Freie Universität Berlin, Berlin, Germany

<sup>2</sup> Department of Chemistry & Biochemistry, Miami University, Oxford, USA

This special issue contains selected contributions from the plenary and keynote lectures as well as from the special workshops given at the 7th Tannin Conference (presymposium) and the 58th International Congress and Meeting of the Society for Medicinal Plant and Natural Product Research (GA), Berlin, Germany.

Tannins have been the subject of extensive research for many decades. Significant advances in the elucidation of their constituents and conformations, as well as in the broad recognition of their fascinating biological, pharmacological, and physiological activities have led to increasing attention to these metabolites. Since all tannin actions very probably derive from some of their chemical features, and molecular recognition is a key step in many biological processes, conformational analyses and studies on the interaction with biological macromolecules have attracted the interest of scientists from many disciplines. This focus is reflected in contributions on the stereochemical structure determination of polyphenol complexes with caffeine (T. Ishizu et al.), the molecular interpretation of astringency (I. Pianet et al.), and in the field of biological activities, the antioxidant activity of metabolites of ellagitannins (H. Ito).

The Polyphenol Community of Scientists proudly honoured Prof. Daneel Ferreira at the 7th Tannin Conference through the presentation of the 2010 Tannin Conference Award. This appreciation was in recognition of his life-long seminal contributions to the field of tannin chemistry. His comprehensive review (Ferreira and Coleman) deals with the synthesis of proanthocyanidins at a scale that permits assessment of their pharmacological activities. The isolation of chemically defined tannins in their free phenolic forms from natural sources often relies on tedious processes that have low yields. Lack of pure defined materials has considerably limited biological activity studies. The availability of effective synthetic procedures alleviates these restrictions and will significantly contribute to the research on proanthocyanidins, the compounds credited for the profound health-promoting effects of many herbal medicines and foodstuff.

The use of herbal medicines for the treatment of illness and disease may be contemplated to be as old as mankind itself. There is a continuing effort to investigate the chemical and biological basis for the activities of indigenous medicinal plants. The picture that emerges from numerous scientific

studies is one of efficacy for many ethnomedicinals. Thus, traditionally used herbal medicines provide an inestimably rich source of potentially active metabolites that may be employed not only as drugs but also as unique leads serving as starting points for the synthesis of optimized chemical analogues. On the other hand, indigenous herbal medicines have provided the basis for the development of modern phytopharmaceuticals which satisfy current criteria of quality, safety, and efficacy. Traditional ethnic knowledge about plants is a source of inspiration for new drug development from as-yet untapped different ecosystems that reflect the enormous biological diversity of our planet.

In order to demonstrate the potential of ethnopharmacological plant species for drug development, we were fortunate to gather a number of experts from different plant-rich countries where the rural population has limited access to modern drugs and appreciates traditional medicines. Selected contributions from this topic at the 58th GA meeting cover the broad spectrum from Panamanian plants for the treatment of a variety of diseases (Gupta and Caballero-George) to medicinal plants from Jordan in the treatment of cancer and diabetes (Afifi-Yazar, Kasabri, and Abu-Dahab). The reports on individual indigenous plant species including the antiproliferative constituents of *Conyza canadensis* (Hohmann et al.), the identification of the antimalarial principle of *Ormocarpum kirkii* and *Bafadeya benna* (Pieters et al.), and the indigenous historical and extant use of *Hoodia gordonii* as well as its commercialization (Viljoen et al.) provide some insight into the need for research into the medicinal value of herbal medicines.

Besides contributions concerned with traditional herbal medicines, the topics of the GA conference showed the broad spectrum of modern natural product research, ranging from genomic mining and sophisticated analytical methods to clinical studies. An excellent example of pharmacological and clinical studies is the overview of standardized extracts from hawthorn (Koch and Malek). A bridge between the 7th Tannin Conference and the 58th GA Congress is found in the paper on current evidence for vascular protection by polyphenol rich foods from *in vitro* and *in vivo* studies (Shini-Kerth and coauthors). In view of the importance of the antimicrobial potential of medicinal plants, the review on how to study antimicrobial interactions (van Vuuren and Vil-

## Bibliography

**DOI** <http://dx.doi.org/10.1055/s-0030-1271158>  
 Planta Med 2011; 77:  
 1069–1070 © Georg Thieme  
 Verlag KG Stuttgart · New York ·  
 ISSN 0032-0943

## Correspondence

**Prof. Dr. Herbert Kolodziej**  
 Institute of Pharmacy,  
 Pharmaceutical Biology  
 Freie Universität Berlin  
 Königin-Luise-Str. 2 + 4  
 14195 Berlin  
 Germany  
 Phone: + 49 30 83 85 37 31  
 Fax: + 49 30 83 85 37 29  
 kolpharm@zedat.fu-berlin.de

joen) provides critical information that should benefit many researchers.

Some contributions were devoted to the year of biodiversity 2010 and sustainable drugs, emphasizing awareness of the need to maintain and monitor Earth's resources (Cordell). For most of the world's population, plants represent the foundation of primary health care for the foreseeable future. Equitable sharing of the benefits of biodiversity is one of the main objectives of the Convention on Biological Diversity. Yet lack of clarity about some of the basic concepts and approaches in access and benefit sharing have meant limited practical implementation. The issue of benefit-sharing legislation is discussed by Oliva.

Last but not least, Dr. Melanie Laszczyk received the Egon Stahl Award in Bronze for her excellent work on triterpenes. Since her results have recently been published in *Planta Medica*, her pre-

sentation is not included here. Prof. Jürg Gertsch was awarded with the "Dr.-Willmar-Schwabe-Preis" for his outstanding contributions on the interaction between natural products and the endocannabinoid system. In this special issue his very stimulating paper is included, providing a profound basis for developing new insights into the mode of action of herbal medicines.

These papers represent the scope and quality of the numerous contributions to the 7th Tannin Conference (presymposium) and the 58th International Congress and Meeting of the Society for Medicinal Plant and Natural Product Research (GA). We are pleased to provide them to the scientific community in this special issue of *Planta Medica* and hope that they inspire continued investigations into the bioactivities of natural products.

*Herbert Kolodziej and Ann Elizabeth Hagerman*