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Editorial guidelines for manuscripts on the pharmacology of plant extracts

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Extracts from plants and other biological sources have been used in medicine for millennia. They have been the source of many chemically defined drugs that have become cornerstones of pharmacotherapy such as morphine or the digitalis glycosides. Plants continue to be an important source of chemical diversity in the search for novel drugs, as evidenced by the more recent introduction of paclitaxel and the derivatives thereof in cancer treatment and the artemisinins in malaria treatment. Therefore, this journal has been and will be publishing manuscripts on the pharmacology of plant extracts and other natural products and compounds. However, we have noted in our editorial process that such manuscripts had an above-average rejection rate. In order to assist authors, we would like to outline editorial guidelines for manuscripts related to the pharmacology of plant extracts. We will illustrate our policy with examples based upon recently published articles from the journal. These guidelines should also be applicable to extracts from other biological sources.

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Manuscripts that use or identify the biologically active ingredient in a plant extract (Álvarez-Castro et al. 2004; Chen et al. 2003b; Efferth et al. 2003; Frederich et al. 2003; Fusi et al. 2003; Kim et al. 2004; Rang et al. 2003; Wang et al. 2004; Wins et al. 2003; Zhang et al. 2004) are preferred to those that use crude extracts only. Where chemically defined active ingredients have not been or could not be identified, studies that at least narrow down the possible active principles by bioactivity-guided fractionation, e.g. by chromatographic separation, are preferred. When crude extracts are investigated, extracts that are commercially used on an international scale as remedies are preferable (Borchert et al. 2004; Chen et al. 2003a). In such cases it is helpful to provide estimates regarding how the concentrations employed in the experiments relate to those potentially achievable by standard therapeutic doses of such preparations.

In order to characterize an extract, the correct botanical plant and family name (Index Kewensis, the international code of botanical nomenclature), the plant parts (leaves, stem, radix, whole plant, etc.) from which it was derived, as well as the geographical area and the time of collection, must be provided; it will be an advantage if voucher specimens have been deposited in an appropriate herbarium. Furthermore, the extraction conditions (solvent, time, and temperature), the drug-solvent ratio, the extraction method (Soxhlet, column, maceration, etc.) must be indicated, including the correct quantitative information. Any further characterization by high performance liquid chromatography (HPLC), thin layer chromatography (TLC), gas chromatography (GC) or standardization using a putative lead compound must be communicated. This should be in sufficient detail to allow qualified investigators to perform a similar extraction. Studies on extracts that are difficult to prepare, including those from rare sources, are accepted with the understanding that they will be made available to qualified investigators from academic institutions.

If novel and chemically pure natural compounds are used, their physicochemical properties such as visual appearance (e.g. oil, crystal, liquid), melting point/boiling

point, chromatographic properties (TLC, HPLC, GC) and spectra (UV, mass spectrometry, nuclear magnetic resonance spectroscopy) should either be described or referred to if published in chemical journals.

When studies include analysis of natural compounds, crucial data concerning validation including specificity, linearity, accuracy, precision, limit of detection and quantification as well as robustness of the analytical procedure must be provided. Moreover, the recoveries of extraction and pre-purification methods have to be stated. In addition, the source and purity of standards needs to be defined.

Generally, studies that identify the effects of an extract on a molecular level (Borchert et al. 2004; Christ et al. 2004; Kwan et al. 2004) are preferred to those that only use rather descriptive functional read outs. The relationship between the functional read outs and the documented or postulated indications should clearly be described. If clinical studies on a given extract have been performed, these should be identified. While randomized, controlled clinical studies are obviously the best source of such clinical information, information from other sources should be provided if those are lacking.

We hope that these guidelines will assist authors in the preparation of manuscripts that are suitable for publication.

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