

# Revised 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. Plants continue to be an important source of chemical diversity in the search for novel drugs, as evidenced by the 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. To ensure publications of acceptable high quality and standards, we would like to outline editorial guidelines for manuscripts related to the pharmacology of plant extracts. These guidelines are also applicable to extracts from other biological sources.

Manuscripts that use or identify the biologically active ingredient in a plant extract are welcome. Studies with crude extracts where chemically defined active ingredients have not been or could not be identified can only be considered for publication if these crude extracts are commercially used on an international scale as remedies. 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. Moreover, the source and batch number of the commercially available extract have to be provided.

In order to characterize an extract, the correct botanical plant and family name (Index Kewensis, the international code of botanical nomenclature; check of the plant with <http://www.theplantlist.org>), the plant parts (leaves, stem, radix, whole plant, etc.) from which it was derived, as well as the geographical area, the time of collection, and collection in the wild or cultivation 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, and 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), or gas chromatography (GC) must be communicated. This should be in sufficient detail to allow qualified investigators to perform a similar extraction. In case of the biologically active ingredient, their quantitative analysis should be provided.

If novel and chemically pure natural compounds are used, spectra (UV, mass spectrometry, nuclear magnetic resonance spectroscopy) should either be described or referred to if published in chemical journals. Purity and structural formula of the investigated natural compound have to be provided.

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 are preferred to those that only use rather descriptive functional read outs. Concentration/response curves are important and every effort must be made to assign a pharmacological effect to a defined chemical compound in

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the extract. Whenever possible, studies on a plant extract should be accompanied by parallel studies with a chemically pure compound from this extract.

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.

The *Journal of Pharmacological Sciences* has similar guidelines regarding papers on natural products (<https://www.elsevier.com/journals/journal-of-pharmacological-sciences/1347-8613/guide-for-authors>) as *Naunyn-Schmiedeberg's Archives of Pharmacology*.

We hope that these guidelines will assist authors in the preparation of manuscripts that are suitable for publication in *Naunyn-Schmiedeberg's Archives of Pharmacology*.