DESCRIPTION

Rhizosphere aims to advance the frontier of our understanding of plant-soil interactions. Rhizosphere is a multidisciplinary journal that publishes research on the interactions between plant roots, soil organisms, nutrients, and water. Except carbon fixation by photosynthesis, plants obtain all other elements primarily from soil through roots.

We are beginning to understand how communications at the rhizosphere, with soil organisms and other plant species, affect root exudates and nutrient uptake. This rapidly evolving subject utilizes molecular biology and genomics tools, food web or community structure manipulations, high performance liquid chromatography, isotopic analysis, diverse spectroscopic analytics, tomography and other microscopy, complex statistical and modeling tools.

Field experiments, microcosm experiments, and soil-free research will be considered. Research papers, technical or method papers, reviews, and commentaries are welcome. Papers discussing informative negative results will also be considered.

ABSTRACTING AND INDEXING

ScienceDirect
Web of Science
Biological Abstracts
BIOSIS Previews
Scopus

EDITORIAL BOARD

Editor-in-Chief
S.M. Adl, University of Saskatchewan, Saskatoon, Canada

Associate Editors
Y. Kuzyakov, Georg-August-Universität Göttingen, Göttingen, Germany
X. Xu, Chinese Academy of Sciences (CAS), Beijing, China

Editorial Board
E. Bladogatskaya, Russian Academy of Sciences, Pushchino, Russia
University of Göttingen, Göttingen, Germany
M. Buée, INRA Centre de Nancy, Champenoux, France
A. Carminati, Georg-August-Universität Göttingen, Göttingen, Germany
L.C. Carvalhais, University of Queensland, Brisbane, Queensland, Australia
Y. Chen, Northwest A&F University, (CAS), Yangling, China & the University of Western Australia, Perth, Australia
X. Cui, University of Chinese Academy of Sciences (UCAS), Beijing, China
E. Dilfuza, Leibniz Centre for Agricultural Landscape Research, Müncheberg, Germany
D. Egemberdieva, Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF), Müncheberg, Germany
P. Hill, Environment Centre Wales, Bangor University, Bangor, Wales, UK
D.L. Jones, Bangor University, Bangor, Wales, UK
H. Liao, Fujian Agriculture and Forestry University, Fuzhou, China
H.L. Liao, University of Florida, Quincy, Florida, USA
M. Liu, Nanjing Agricultural University, Nanjing, China
J. McDonnell, University of Saskatchewan, Saskatoon, Canada
D.H. McNear Jr., University of Kentucky, Lexington, Kentucky, USA
E. Oburger, University of Vienna, Vienna, Austria
T.K. Raab, Stanford University, Stanford, USA
B. Razavidezfuly, University of Kiel, Kiel, Germany
T. Roose, University of Southampton, Southampton, UK
A. Schnepf, Institute of Crop Science and Resource Conservation, Jülich, Germany
E. Stockdale, Newcastle University, Newcastle Upon Tyne, UK
J. Talbot, Boston University, Boston, Massachusetts, USA
J.M. Warren, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA
H. Yin, Chinese Academy of Sciences (CAS), Chengdu, China
B. Zhu, Peking University, Beijing, China
GUIDE FOR AUTHORS

INTRODUCTION
Before you begin, consult the section on ethics in publishing, declarations, copyrights, authorship and order of authors, and submitting drawings/artwork as figures.

Peer review
This journal operates a double blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

Language (usage and editing services)
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's WebShop.

Types of article

Regular papers
Original full-length research papers which have not been published previously, except in a preliminary form, may be submitted as regular papers.

Short Communication
These short papers should not exceed 1800 words, excluding references and legends. The manuscript should be in a continuous form without sections such as Introduction, Materials and methods, Results and Discussion. However, a Cover page, Abstract and a list of Keywords are required at the beginning of the communication, and Acknowledgements and References at the end. Submissions should include a short abstract of less than 150 words that focuses on the main conclusion of the work, placed in context. Figures and tables are limited to no more than four combined. References should be limited to 15–20 citations. Occasionally authors may use sub-titles of their own choice to organize sections of the text.

Technical Note
A short manuscript of about 1200 words excluding references, focusing on a technical point or one conclusion. Authors may use one or two sub-headings in italics; but without sections such as Introduction, Materials and methods, Results and Discussion. Up to fifteen citations may be referenced. Figures or tables are limited to a total of four.

Opinion paper
Authors may submit comments and views on any subject covered by the Aims and Scope. The article should be about 1200 words, and submitted to a Chief Editor.

Review Article
Reviews are not limited in length, but if your document is unusually lengthy (more than twenty published pages) contact the Editor-in-Chief. Reviews are particularly useful if they bring together information scattered in different disciplines or in diverse journals. In rapidly evolving subjects, timely reviews are very useful if they provide an opinionated synthesis. Translating technical subjects into more accessible vocabulary for a more diverse audience is sometimes beneficial. Literature surveys are not acceptable as a review, unless they provide critical and analytical insight.

Short Review
The manuscript is limited to 3 published pages, including figures, tables, and references. Literature reviews are not acceptable as a review, unless they provide critical and analytical insight.

MANUSCRIPT PREPARATION
Consult the Publication Options below to see the diversity of services available. Consult the Before you Begin section below to understand Elsevier and Rhizosphere policy and guidelines.
Numbering lines and pages
Format your manuscript to be double-spaced lines, with continuous line-numbering, and page numbers, with the first page of the introduction as page 1. These are essential peer review requirements.

Referees
Choose the names and institutional e-mail addresses of several potential referees. Referees must not be from the same institution, or in conflict of interest due to personal or academic interactions. For more details, visit our Support site. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

Submission
Submission to this journal proceeds online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts source files to a single PDF file of the article, which is used in the peer-review process. Manuscript source files are converted to PDF files at submission for the review process; after acceptance editable source files are needed for further processing. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail through the online system.

Essential title page information
Title. Concise and informative, it must convey the main conclusion of your manuscript. Titles are used by potential readers to decide if they will read or download your paper, instead of dozens of others. So it is worth spending time on a well-crafted title. Titles are often used in information-retrieval systems. Avoid abbreviations, formal species names, and formulae where possible.

Author names and affiliations. Provide the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name in your own script between parentheses after the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

Order of authors and contributors. Please consult the relevant section below at Before you Begin to place correctly the order of authors, and to acknowledge contributors. By submitting this manuscript, Rhizosphere assumes the order of author guidelines below are followed.

Corresponding author. Ensure that one author is designated as the corresponding author with contact details, both E-mail address and full postal address. Only the corresponding author will receive correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. Ensure that the e-mail address is given and that contact details in the Elsevier system are kept up to date by the corresponding author.

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Article structure
Verify with the type of article above how the sections below apply to your document.

Abstract
A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Keywords
Keywords are used to find reviewers and for readers to find manuscripts. Before submitting these keywords, verify that the combination does indeed find the appropriate similar research papers in the discipline. Immediately after the abstract, provide a maximum of 6 keywords, using British spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). These keywords will also be used for indexing purposes.

Main text
Introduction
Provide an adequate background using citations to relevant publications and finish by stating clearly the objectives of the work. The introduction is your opportunity to demonstrate how well you know the literature in your discipline. Try to select the best and most relevant published manuscripts.

Experimental
Provide sufficient details to allow the work to be reproduced by another laboratory. Well-known and routine methods do not need to be explained, simply name them and cite a standard protocol. Methods that are already published should be described briefly and cited. Any modifications to existing methods should be described. If quoting directly from a previously published method, use quotation marks and cite the source.

Theory/calculation
A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

Results
Results should be clear and concise. Do not repeat information in figures and tables, but do describe trends and patterns, and note the points that will be discussed.

Discussion
Use sub-headings to organize your discussion. Explain the significance of each result, in context of the work of others that is relevant. A combined Results and Discussion section is not recommended. Avoid digressions, and excessive speculation.

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not include them on the title page, as a footnote to the title, or otherwise. List here contributors, and those individuals who provided help during the research that need acknowledgement. (See the section below on authorship and order of authors to identify contributors to this manuscript that need to be listed).

Nomenclature and units
Follow internationally accepted rules and conventions: use the international system of units (SI). If other quantities are mentioned, give their equivalent in SI. You are urged to consult IUPAP: Symbols, Units, Nomenclature and Fundamental Constants in Physics for further information.

Figures and tables embedded in text
Place figures and small tables included in the single file next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding figure legend or caption should be directly below the figure or table. For additional information on figures and data publication refer to the Artwork, Research Data, and Article Enrichments sections below.

Figure captions
Ensure that each illustration has a caption. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Tables
Submit tables as editable text and not as images. Smaller tables can be placed either next to the relevant text in the article, or on separate page(s) at the end, along with larger tables. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Avoid using vertical rules and shading in table cells.

References
Reference formatting at submission

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, volume number/book chapter, year of publication and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal is needed for revised manuscripts.

Citation in Text

Verify that every reference cited in the text is also present in the reference list (and vice versa). Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either. Unpublished result or Personal communication. Citation of a reference as 'in press' implies that the item has been accepted for publication and a DOI link to the article must be submitted.

Reference links

A DOI can be used to cite and link to electronic articles where an article is in-press and full citation details are not yet known, but the article is available online. A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. To create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, data provided in the references must be correct. Incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, be careful as they may already contain errors.

Web references

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Data references

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

Reference to arXiv

As with unpublished results and personal communications, references to arXiv documents are not recommended in the reference list. Please make every effort to obtain the full reference of the published version of an arXiv document. If a reference to an arXiv document must be included in the references list it should follow the standard reference style of the journal and should include a substitution of the volume and page numbers with 'arXiv:YYMM.NNNN' or 'arXiv:archive/YYMMNNN' for articles submitted to arXiv before April 2007.

Reference formatting for accepted manuscripts

The reference style used by the journal is needed for the accepted article by Elsevier at the proof stage. It is more expedient to provide a correctly formatted revised manuscript. Where applicable, author(s) name(s), journal title/book title, volume number/book chapter, year of publication and the pagination must be present. Use of DOI is highly encouraged. Note that missing data will be highlighted at proof stage for the author to correct. To format the references yourself they should be arranged according to the following examples:

Reference style

Text: All citations in the text should refer to:
1. **Single author:** the author's name (without initials, unless there is ambiguity) and the year of publication;
2. **Two authors:** both authors' names and the year of publication;
3. **Three or more authors:** first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references can be listed either first alphabetically, then chronologically, or vice versa.

Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999).... Or, as demonstrated (Jones, 1999; Allan, 2000)... Kramer et al. (2010) have recently shown ...'
List: References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

Examples:
Reference to a journal publication:
Reference to a journal publication with an article number:
Reference to a book:
Reference to a chapter in an edited book:
Reference to a website:
Reference to a dataset:

BEFORE YOU SUBMIT
Submission checklist
You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details. Journal policies detailed in this guide have been reviewed Referee suggestions and contact details provided Manuscript has been 'spell checked' and 'grammar checked' Keywords are verified All references in the Reference List are cited in the text, and vice versa All figures include relevant captions All tables have title, description, footnotes Ensure all figure and table citations in the text match the files provided, in the correct sequence Permission has been obtained for use of copyrighted material from other sources (including the Internet) A competing interests statement is provided, even if the authors have no competing interests to declare Verify that all manuscript files have been uploaded If tables or figures do not present well, or with illegible text, the document will be returned to you. Supplemental files (if applicable) Indicate clearly if color should be used for any published figures Graphical Abstracts are encouraged. These should be a single slide summary of your results. It should be useful for someone presenting or discussing your work. Highlights improve the visibility of your work online. They should be 3 or 4 short bullet points that describe your main conclusions and message

For further information, visit our Support Center.

REVISED SUBMISSIONS
Use of word processing software
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.
To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

LaTeX
You are recommended to use the Elsevier article class elsarticle.cls to prepare your manuscript and BibTeX to generate your bibliography. Our LaTeX site has detailed submission instructions, templates and other information.

AFTER ACCEPTANCE
Availability of accepted article
This journal makes articles available online as soon as possible after acceptance. This concerns the accepted article (both in HTML and PDF format), which has not yet been copyedited, typeset or proofread. A Digital Object Identifier (DOI) is allocated, thereby making it fully citable and searchable by title, author name(s) and the full text. The article's PDF also carries a disclaimer stating that it is an unedited article. Subsequent production stages will simply replace this version.

Online proof correction
Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.

If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF. We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

Offprints
The corresponding author will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier’s Webshop. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

Publishing options
Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.

Open access
This journal offers authors a choice in publishing their research:

By Subscription
• Articles are made available to subscribers as well as developing countries and patient groups through our access programs.
• No open access publication fee payable by authors.

By paying a fee
• Articles are freely available to both subscribers and the wider public with permitted reuse.
• An open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution. Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.
• The open access fee for this journal is USD 3,000 excluding taxes. Learn more about Elsevier’s pricing policy: https://www.elsevier.com/openaccesspricing
• For open access articles, permitted third party (re)use is defined by the following: Creative Commons user licenses

Creative Commons Attribution (CC BY)
Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article,
and do not modify the article in such a way as to damage the author's honor or reputation. Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) For non-commercial purposes, let others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

**Database linking**
Elsevier encourages authors to connect articles with external databases, giving their readers one-click access to relevant databases that help to build a better understanding of the described research. Please refer to relevant database identifiers using the following format in your article: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN). See https://www.elsevier.com/databaselinking for more information and a full list of supported databases.

**Embedded math equations**
If you are submitting an article prepared with Microsoft Word containing embedded math equations then please read this (related support information).

**Research data**
This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

**Data linking**
If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**Mendeley Data**
This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to Mendeley Data. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the Mendeley Data for journals page.

**Data in Brief**
You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for Data in Brief as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to Data in Brief where it will be
editorially reviewed and published in the open access data journal, *Data in Brief*. Please note an open access fee of 500 USD is payable for publication in *Data in Brief*. Full details can be found on the *Data in Brief* website. Please use this template to write your Data in Brief.

**MethodsX**
You have the option of converting relevant protocols and methods into one or multiple MethodsX articles, a new kind of article that describes the details of customized research methods. Many researchers spend a significant amount of time on developing methods to fit their specific needs or setting, but often without getting credit for this part of their work. MethodsX, an open access journal, now publishes this information in order to make it searchable, peer reviewed, citable and reproducible. Authors are encouraged to submit their MethodsX article as an additional item directly alongside the revised version of their manuscript. If your research article is accepted, your methods article will automatically be transferred over to MethodsX where it will be editorially reviewed. Please note an open access fee is payable for publication in MethodsX. Full details can be found on the MethodsX website. Please use this template to prepare your MethodsX article.

**Data statement**
To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

**Video**
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

**BEFORE YOU BEGIN**

**Ethics in publishing**
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

**Declaration of interest**
All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. More information.

**Submission declaration and verification**
Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in
Recognising that establishing authorship order varies between disciplines, countries, and sometimes institutions, international journals must either impose a rule, or provide guidelines that permit flexibility. The situation is more difficult for interdisciplinary journals, such as Rhizosphere. Here we outline our guidelines when submitting a manuscript, to determine the order of authors. For a manuscript published in Rhizosphere, the order of authors is assumed to adhere to this guideline, unless stated otherwise in the acknowledgement. Our guideline is based on the ICMJE* recommendations that impose four criteria.

*International Committee of Medical Journal Editors

**Who is an author?**

An author must meet all four criteria:

Significant contributions to the conception or design of the experiment, for example during grant writing or oversight of the project; or to the acquisition, analysis, or interpretation of data included in the manuscript; AND,

Significant contributions to writing the first draft, or assembling data for the first draft, or reviewing it critically for its academic or intellectual content; AND,

Final approval of the version to be published, as far it concerns their expertise; AND,

Accept responsibility for the statements made in the manuscript, the synthesis presented in the overall message, the authenticity of the results and absence of falsified data.

These criteria are meant to be exclusive to limit who is an author. Those that do not meet these criteria are placed in the Acknowledgement as contributors, specifying their role. These include those that provided supervision of the routine project management, material or samples, financial support, administrative support, access to a site or site maintenance, access to specialised instruments, technical support for an instrument or field or laboratory operations, writing assistance, language or technical editing, proof-reading, and for commenting on the manuscript.

**Order of authors in co-authored manuscripts.**

**First and last authors.**

Of the various phases of a research project (the initial idea, its conceptualisation into a project and research proposal, implementation of the project to conduct the experiments, data collection, data analysis, synthesising the data to write a first draft, revisions and improvements to the manuscript, its submission for reviewing and revisions for publication), those that carry the most weight are the initial idea and its conceptualisation into a written project, as well as the analytical synthesis of the data into a first draft.

- We understand the first author to be the person that synthesised the results to write a first draft of a manuscript or a university program thesis. Typically, this person has also contributed the most to carrying out the project.
- We understand the last author to be the person who conceived the initial ideas and concepts for the project. Typically, this person would also have been involved in supervising the project or writing research proposals, and other tasks. The last author takes most of the responsibility for the ethical, intellectual, and academic integrity of the manuscript.

**Order of the remaining co-authors.**

It is the collective responsibility of the authors and contributors, not this journal, to distinguish between authors and contributors, and to agree on the order of authors. In cases of disagreement about authorship and the order, it is the responsibility of the principal investigator and the Institution but not the journal editors, to investigate and establish the order.

- By default, it is assumed that the list of the remaining co-authors represents the ranked contribution of each to the research in the manuscript submitted.
- Alternatively, they can be listed alphabetically or by seniority on the project, if so stated in the Acknowledgements.
- The choice of corresponding author is a pragmatic one. This person takes responsibility for all correspondence regarding the manuscript, from pre-submission steps, through to publication, and any post-publication matter that needs to be addressed.
Changes to authorship
If authors request removal, change in sequence, or addition of an author after manuscript submission or publication, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed. Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors after the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum. The editor will need an explanation and signed statement of agreement for the requested change from all listed authors and from the author to be removed or added. *International Committee of Medical Journal Editors.

Copyright
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

Elsevier supports responsible sharing
Find out how you can share your research published in Elsevier journals.

Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.

Artwork
Image manipulation
Whilst it is accepted that authors sometimes need to manipulate images for clarity, manipulation for purposes of deception or fraud will be seen as scientific ethical abuse and will be dealt with accordingly. For graphical images, this journal is applying the following policy: no specific feature within an image may be enhanced, obscured, moved, removed, or introduced. Adjustments of brightness, contrast, or color balance are acceptable if and as long as they do not obscure or eliminate any information present in the original. Nonlinear adjustments (e.g. changes to gamma settings) must be disclosed in the figure legend.

Electronic artwork
General points
• Make sure you use uniform lettering and sizing of your original artwork.
• Embed the used fonts if the application provides that option.
• Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
• Number the illustrations according to their sequence in the text.
• Use a logical naming convention for your artwork files.
• Provide captions to illustrations separately.
• Size the illustrations close to the desired dimensions of the published version.
• Submit each illustration as a separate file.
A detailed guide on electronic artwork is available. 

You are urged to visit this site; some excerpts from the detailed information are given here.

**Formats**

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format. Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

- EPS (or PDF): Vector drawings, embed all used fonts.
- TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
- TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
- TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

Please do not:
- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

**Color artwork**

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.

**Illustration services**

Elsevier's WebShop offers Illustration Services to authors preparing to submit a manuscript but concerned about the quality of the images accompanying their article. Elsevier's expert illustrators can produce scientific, technical and medical-style images, as well as a full range of charts, tables and graphs. Image 'polishing' is also available, where our illustrators take your image(s) and improve them to a professional standard. Please visit the website to find out more.

**Elsevier Researcher Academy**

Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

**Use of inclusive language**

Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

**Double-blind review**

This journal uses double-blind review, which means the identities of the authors are concealed from the reviewers, and vice versa. More information is available on our website. To facilitate this, please include the following separately:

*Title page (with author details)*: This should include the title, authors' names, affiliations, acknowledgements and any Declaration of Interest statement, and a complete address for the corresponding author including an e-mail address.

*Blinded manuscript (no author details)*: The main body of the paper (including the references, figures, tables and any acknowledgements) should not include any identifying information, such as the authors' names or affiliations.
Data visualization
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

AUTHOR INQUIRIES
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch. You can also check the status of your submitted article or find out when your accepted article will be published.

© Copyright 2018 Elsevier | https://www.elsevier.com