IMPORTANT MANUSCRIPT SUBMISSION REQUIREMENTS

Manuscripts and revised manuscripts must be submitted via the ACS Paragon Plus Web site (http://paragonplus.acs.org/login). E-mailed submissions and hardcopy submissions will not be processed. An overview of and complete instructions for the Web submission process are available at the ACS Paragon Plus Web site.

When submitting, please be aware of the following requirements.

- All manuscripts must be accompanied by a cover letter that includes an explanation of the manuscript’s significance, including its originality, its contribution to new knowledge in the field, and its relevance to research in agricultural and food chemistry.

- The system requires authors to supply the names, e-mail addresses, and affiliations of at least four recommended reviewers. The recommended reviewers should be experts in the subject matter of the manuscript and not be anyone who is or has been a former adviser/advisee, colleague in the same institution, research collaborator, and/or coauthor of papers and patents or in any other way has a conflict of interest.

- The author’s preference for manuscript category is indicated during the submission process. However, the final decision on the category under which the manuscript will be listed lies with the Editor.

- The manuscript abstract and text must appear in a single, double-spaced column; lines in the abstract and text must be numbered consecutively from beginning to end in a separate column at the left.
• All coauthors listed on the title page of the manuscript must be entered into the Paragon Plus System at step 2 in the manuscript submission process. Only one corresponding author is allowed for each manuscript in Paragon Plus. Additional corresponding authors may be designated on the manuscript title page.

• Authors selecting the *Just Accepted* manuscript option when submitting should be sure that the form of author and coauthor names as entered into the Paragon Plus System is identical to the form on the manuscript title page.

• References must be numbered in the order in which they appear in the text.

• All of the text (including the title page, abstract, all sections of the body of the paper, figure captions, scheme or chart titles and footnotes, and references) and tabular material should be in one file, with the complete text first followed by the tabular material.

• A separate conclusion section is not to be used. Conclusions should be incorporated into the results and discussion section.

• If the manuscript is one of a series of companion manuscripts that will be published sequentially, please describe the planned series in the cover letter, mentioning previously published parts and giving an estimate of when subsequent parts will be submitted.

Complete instructions for manuscript preparation and the Journal Publishing Agreement form are updated frequently and are available at the Journal’s Web site. Please conform to these instructions when submitting manuscripts.

Authors whose manuscripts are published in *Journal of Agricultural and Food Chemistry* will be expected to review manuscripts submitted by other researchers from time to time.

**JOURNAL SCOPE**

The *Journal of Agricultural and Food Chemistry* publishes high-quality, cutting edge original research representing complete studies and research advances dealing with the chemistry and biochemistry of agriculture and food. The *Journal* also encourages papers with chemistry and/or biochemistry as a major component combined with biological/sensory/nutritional/toxicological evaluation related to agriculture and/or food. As a general rule, manuscripts dealing with herbal remedies or those testing specific compounds in cell-based assays related to disease states (e.g., “anticancer” activity) will no longer be considered within the scope of the *Journal* and should be submitted elsewhere. Manuscripts describing properties of extracts, without detailing the chemical composition of the extracts responsible for the described properties, will generally not be accepted for review.

The *Journal* is organized into the following sections:
**Agricultural and Environmental Chemistry:** crop protection chemistry, addressing synthesis combined with testing of new materials, environmental behavior and fate, residues, and mechanism of effects on both target and nontarget organisms.

**Analysis and Chemosensory Perception of Flavor:** chemistry of flavor (i.e., smell, aroma, taste, texture, and color) of foods and associated with plant and animal production of foods.

**Analytical Methods:** new analytical method development using chemical, physical, and biological methods. When a manuscript describes the application of an existing method, even when modified, the category selected should be driven by the application (e.g., Agricultural and Environmental Chemistry, Analysis and Chemosensory Perception of Flavor, Bioactive Constituents and Functions, etc.).

**Bioactive Constituents and Functions:** identification and characterization of bioactive constituents (e.g., antioxidants and other phytonutrients and nutraceuticals) in foods and how they function to affect health status of consumers, including molecular nutrition aspects. Manuscripts describing work with traditional medicines, herbal remedies, etc., will not normally be considered. We also urge authors to evaluate bioactives in animal models or clinical human trials and not rely solely on cell-based or other in vitro assays.

**Biofuels and Biobased Products:** chemistry of biofuel and biobased products, including feedstocks, conversion, refining, waste utilization, disposal, and sustainability, and environmental emissions and effects associated with these processes.

**Chemical Aspects of Biotechnology and Molecular Biology:** processes and underlying chemical science involving classical and modern aspects of biotechnology applicable to food and agricultural systems; to include proteomic and genomic techniques applicable to measurement and evaluation in food production and metabolism.

**Food and Beverage Chemistry/Biochemistry:** chemistry and biochemistry associated with food and beverage production, processing, preparation, composition, packaging and storing, including both naturally occurring and added components.

**Food Safety and Toxicology:** chemical aspects of toxicology of crop protection, contaminants, and related chemicals and the design and action of chemically related processes that enhance food safety.

**Targeted Metabolomics Applied to Agriculture and Food** (see more details on p 18): applications of metabolomics as related to research topics in agriculture, food, and nutrition, in particular metabolite-targeted analysis and progress in the development of analytical platforms for metabolomics approaches.
MANUSCRIPT TYPES

Research articles must report original research that is expected to have a definable impact on the advancement of science and technology, incorporating a significant component of innovative chemistry. Originality will be documented by novel experimental results, theoretical treatments, interpretations of data, and absence of prior publications on the same/similar topics. Fragmentation of work into an incremental series of manuscripts is not acceptable.

Letters are manuscripts describing results deemed to be highly important and urgent in a field of research. Only manuscripts reporting complete research, as opposed to preliminary results, will be considered. The cover letter for these manuscripts must clearly describe why the results are timely and urgent enough to justify the Letters format. In addition, the abstract must also make this plain to the reader. If deemed appropriate by the editors for the format, these manuscripts will be subject to the normal, but expedited, peer review process.

Review articles will be considered that summarize information in a field in which the literature is scattered and/or treat published data or other information so as to provide a new approach or stimulate further research. Authors considering the preparation of a review should submit a synopsis to the Editor before submission to establish whether the manuscript will meet these guidelines.

Perspectives, which explore needs and opportunities in agricultural and food chemistry in a less technical format than a review article, will be considered. Authors should contact the Editor to outline the area to be covered before submitting a Perspectives manuscript. For an example, see J. Agric. Food Chem. 2008, 56, 7587–7592.

Comments related to published papers will be considered from readers if the correspondence is received within six months of the date of publication of the original paper; the authors of the original paper will be given the opportunity to reply to such comments within two months, if they so desire. Both comments and replies should not exceed 1000 words each, including citations, and will be published consecutively in the same issue of the Journal after peer review. For examples, see J. Agric. Food Chem. 2007, 55, 7213–7214 and J. Agric. Food Chem. 2007, 55, 7215–7216; J. Agric. Food Chem. 2011, 59, 464–465 and J. Agric. Food Chem. 2011, 59, 466.

Symposia or Topical Collections. The Editor will consider publication of a series of manuscripts reporting or synthesizing original research that are presented in a symposium or otherwise clustered around a single topic. Prospective organizers should contact the Editor well in advance to determine whether the subject matter conforms to the Journal’s goals, criteria, and available space and to obtain specific instructions for submission of the manuscripts. For an example, see J. Agric. Food Chem. 2008, 56, 5983–6184. Each manuscript will be subject to the normal peer-review process.

Additions/Corrections. Corresponding authors wishing to submit a correction to a paper already published in print should submit the item via the Paragon Plus Web site. In your cover letter, include the manuscript number of the paper to be corrected. In the correction document, include the full title of the original publication, all author names, the volume and page numbers of the print publication, the original manuscript number, and a brief description of the correction(s) needed. If a figure is to be corrected, please include the figure in the correction document. Please note that the Editor has final approval as to whether an addition/correction will be published.
ETHICS, CONFLICT OF INTEREST

Authors and coauthors are responsible for the integrity of their manuscripts. The Editor may impose a two-year submission moratorium on authors and coauthors that are found to be in violation of the ethical guidelines.

Authors and coauthors should familiarize themselves by reading the entire Ethical Guidelines to Publication of Chemical Research, which is available at the ACS Publications Web site.

A statement describing any financial conflicts of interest or lack thereof is published with each manuscript. During the submission process, the corresponding author must provide this statement on behalf of all authors of the manuscript. The statement should describe all potential sources of bias, including affiliations, funding sources, and financial or management relationships, that may constitute conflicts of interest (please see http://pubs.acs.org/ethics, ACS Ethical Guidelines). The statement will be published in the final paper. If no conflict of interest is declared, the following statement will be published in the paper: “The authors declare no competing financial interest.”

In publishing only original research, ACS is committed to deterring plagiarism, including self-plagiarism. ACS Publications uses CrossCheck's iThenticate software to screen submitted manuscripts for similarity to published material. Note that your manuscript may be screened during the submission process. Further information about plagiarism can be found in Part B of the Ethical Guidelines to Publication of Chemical Research.

AUTHOR LIST

During manuscript submission, the submitting author must provide contact information (full name, e-mail address, institutional affiliation and mailing address) for all of the co-authors. Because all of the author names are automatically imported into the electronic Journal Publishing Agreement, the names must be entered into ACS Paragon Plus in the same sequence as they appear on the first page of the manuscript. (Note that co-authors are not required to register in ACS Paragon Plus.) The author who submits the manuscript for publication accepts the responsibility of notifying all co-authors that the manuscript is being submitted. Deletion of an author after the manuscript has been submitted requires a confirming letter to the Editor-in-Chief from the author whose name is being deleted. For more information on ethical responsibilities of authors, see the Ethical Guidelines to Publication of Chemical Research.

EDITORIAL PEER REVIEW PROCESS

Peer review is used to help ensure the highest possible quality in published manuscripts. For a discussion of this, see “The Importance of Peer Review” by H. L. Wheeler and W. B. Wheeler, J. Agric. Food Chem. (Editorial) 2006, 54, 8983–8983. Scientists with expertise in the subject matter being treated will evaluate the manuscript for validity of the experimental design and results, originality, significance, and appropriateness to the Journal. The Editors may exercise their prerogative to decline a manuscript without external peer review if that paper is judged to be outside the scope of the Journal (lacks significant chemistry/biochemistry), poorly written or formatted, fragmentary and marginally incremental, or lacking in significance.

All manuscripts submitted are reviewed and handled by the Editor-in-Chief or assigned to one of the Associate Editors. The Associate Editor and Editorial Assistant are then responsible for the assigned manuscripts, including evaluating the content and format of the paper, selecting reviewers, monitoring the progress of the review process, evaluating the comments of reviewers
and forwarding them to the authors for their response, communicating ultimate acceptance or rejection to the corresponding author, and carrying out a final check of accepted manuscripts for appropriate format and style.

**Typically, three reviewers are selected** per paper on the basis of the subject matter, available expertise, and the Editor’s knowledge of the field. Potential reviewers for each paper are identified by various means, including a computerized search of the subject area. Authors must submit the names and addresses (including e-mail addresses) of at least four potential reviewers who do not have conflicts of interest with the authors or manuscript content; however, the Editors are under no obligation to use specific individuals. Reviewers are normally asked to provide their assessments within two to three weeks. Anonymous copies of the reviews and the Editor’s decision regarding the acceptability of the manuscript are sent to the corresponding author. If the reviewers’ evaluations of the manuscript disagree, or if reviewer’s and Editor’s comments are not satisfactorily addressed by the authors, the Editor may reject the manuscript or select additional reviewers. These additional reviews are used by the Editor to assist in reaching the final decision regarding disposition of the manuscript.

The obligations of the Editors and Reviewers are outlined in the *Ethical Guidelines*. Aids for reviewers titled “A Guide to a Review” and “Components of a Manuscript to be Considered in a Review” are available at the Reviewer Information Web site ([http://pubs.acs.org/4authors](http://pubs.acs.org/4authors)).

**Just Accepted Manuscripts.** *Just Accepted* manuscripts are peer-reviewed, accepted manuscripts that are published on the ACS Publications Web site prior to technical editing, formatting for publication, and author proofing—usually within 30 minutes to 24 hours of acceptance by the editorial office. During the manuscript submission process, authors can choose to have their manuscript published online as a *Just Accepted* manuscript. Authors choosing this option must ensure that all intellectual property/patent issues are resolved. To ensure rapid delivery of the accepted manuscript to the Web, authors must adhere carefully to all requirements in the journal’s Scope, Policy, and Instructions for authors. For further information, please refer to the *Just Accepted* FAQ, at [http://services.acs.org/pubshelp/passthru.cgi?action=kb&item=244](http://services.acs.org/pubshelp/passthru.cgi?action=kb&item=244). Note that publishing a manuscript as *Just Accepted* is not a means by which to comply with the NIH Public Access Mandate.

**ASAP Publication.** Accepted manuscripts will be published on the “Articles ASAP” page on the Journal’s Web site as soon as page proofs are corrected and all author concerns are resolved. Publication on the Web usually occurs within 4 working days of receipt of page proof corrections, and this can be anywhere from 2 to 6 weeks in advance of the cover date of the issue. Manuscripts assigned to a special issue often remain published ASAP for several months. Authors should take this schedule into account when planning intellectual and patent activities related to a manuscript. The date on which an accepted paper is published on the Web is recorded on the Web version of the manuscript and on the first page of the PDF version.

**MANUSCRIPT PREPARATION**

**Manuscript Format.** Manuscripts must be prepared using accepted word-processing software, and all parts must be double-spaced. All pages must be numbered consecutively starting with the title page and including tables and figures. **Lines in the abstract and text should be numbered consecutively from beginning to end in a separate column at the left. Do not put line numbers on pages with tables or figures.** A standard font, in a size of 12 points or greater, must be used. The *Journal* has a **20 typed page limit**, not including references, tables, and figures. Authors must request approval to submit manuscripts exceeding 20 typed pages.
Standard American English usage is required. Authors who are not familiar with standard American English are urged to seek assistance; deficiencies in grammar may be a serious hindrance during the review process.


The style guide is also available at the Journal’s Web site and through ACS ChemWorx.

The various sections of the manuscript should be assembled in the following sequence:

- Title and authorship (single page)
- Abstract and keywords (single page)
- Introduction
- Materials and Methods (including Safety information)
- Results/Discussion
- Abbreviations Used
- Acknowledgment
- Supporting Information description
- References
- Figure captions
- Tables
- Figure graphics
- Graphic for table of contents

**TITLE AND AUTHORSHIP**

The title, authorship, and institutional affiliations should be included on a single page.

**Title.** The title should be specific, informative, and concise. Keywords in the title assist in effective literature retrieval. If a plant is referred to in the title or elsewhere in the text by its common or trivial name, it should be identified by its scientific name in parentheses immediately following its first occurrence. This term should also be provided as one of the keywords. If trade names are mentioned, give generic names in parentheses.

**Authorship.** Be consistent in authorship designation on the manuscript and on all correspondence. **First name, middle initial, and last name** are generally adequate for correct identification, but omit titles. Give the complete mailing address of all institutions where work was conducted and identify the affiliation of each author. If the current address of an author is different, include it in a footnote on the title page. The name of the author to whom inquiries about the paper should be addressed must be marked with an asterisk; provide the telephone and fax numbers and e-mail address of this correspondent.

**ABSTRACT AND KEYWORDS**

**Abstract.** Authors’ abstracts are used directly for *Chemical Abstracts*. The abstract should be a clear, concise (100–150 words), one-paragraph summary, informative rather than descriptive, giving scope and purpose, experimental approach, significant results, and major conclusions. Write for literature searchers as well as journal readers.

**Keywords.** Provide significant keywords to aid the reader in literature retrieval. The keywords are published immediately before the text, following the abstract.
INTRODUCTION
Discuss relationships of the study to previously published work, but do not reiterate or attempt to provide a complete literature survey. Use of Chemical Abstracts/Scifinder and other appropriate databases is encouraged to ensure that important prior publications or patents are cited and that the manuscript does not duplicate previously published work. The purpose or reason for the research being reported, and its significance, originality, or contribution to new knowledge in the field, should be clearly and concisely stated.

Do not include or summarize current findings in this section.

MATERIALS AND METHODS
Authors are required to call special attention in their manuscripts to safety considerations such as explosive tendencies, special precautionary handling procedures, and toxicity.

Apparatus, reagents, and biological materials used in the study should be incorporated into a general section. List devices of a specialized nature or instruments that may vary in performance, such that the model used may affect the quality of the data obtained (e.g., spectroscopic resolution).

List and describe preparation of special reagents only. Reagents normally found in the laboratory and preparations described in standard handbooks or texts should not be listed.

Specify the source, vendor [city and state (or city and country if non-U.S.)], and availability of special equipment, reagents, kits, etc. Do not include catalog numbers.

Biological materials should be identified by scientific name (genus, species, authority, and family) and cultivar, if appropriate, together with the site from which the samples were obtained. Specimens obtained from a natural habitat should be preserved by deposit of samples in an herbarium for plants or in a culture collection for microorganisms, with a corresponding collection or strain number listed.

Manuscripts describing studies in which live animals or human subjects are used must include a statement that such experiments were performed in compliance with the appropriate laws and institutional guidelines and also name the institutional committee that approved the experiments. Authors are encouraged to note the approval code or number or give the name of the approving office or official. (See Reporting Specific Data: Animal or Human Studies.) Manuscirpts reporting data from inhumane treatment of experimental animals will be rejected.

Specific experimental methods should be sufficiently detailed for others to repeat the experiments unequivocally. Omit details of procedures that are common knowledge to those in the field. Brief highlights of published procedures may be included, but details must be left to the References, and verbatim repeat of previously published methods, even if done by the authors, will not be permitted unless a quotation from a published work is included, and placed in quotation marks, with the reference to the source included at the end of the quotation. Describe pertinent and critical factors involved in reactions so the method can be reproduced, but avoid excessive description. For information on the reporting of certain types of data see Reporting Specific Data.

Describe statistical design and methods in this section.
RESULTS/DISCUSSION
Results and discussion may be presented in separate sections or combined into a single section, whichever format conveys the results in the most lucid fashion without redundancy. Be complete but concise in discussing findings, comparing results with previous work and proposing explanations for the results observed.

All data must be accompanied by appropriate statistical analyses, including complete information on sampling, replication, and how the statistical method employed was chosen.

Avoid comparisons or contrasts that are not pertinent, and avoid speculation unsupported by the data obtained.

A separate summary or conclusion section is not to be used; any concluding statements are to be incorporated under Results and Discussion.

ABBREVIATIONS AND NOMENCLATURE
Standard abbreviations, without periods, should be used throughout the manuscript.

Refer to The ACS Style Guide for the preferred forms of commonly used abbreviations. Specialized abbreviations may be used provided they are placed in parentheses after the word(s) for which they are to substitute at first point of use and are again defined in this section. Avoid trivial names and “code” abbreviations (e.g., NAR for naringenin) unless such codes are in common usage (e.g., MTBE for methyl tert-butyl ether).

If trade names are used, define at point of first use. If nomenclature is specialized, include a “Nomenclature” section at the end of the paper, giving definitions and dimensions for all terms. Use SI units insofar as possible. Refer to The ACS Style Guide for lists of SI units and a discussion of their use.

Write all equations and formulas clearly and number equations consecutively. Place superscripts and subscripts accurately; avoid superscripts that may be confused with exponents. Identify typed letters and numbers that might be misinterpreted, such as “oh” for zero or “ell” for one. Chemistry numbering requiring primes should be identified as such (i.e., 3,3’-dihydroxy-), not by an apostrophe (e.g., 3,3´-dihydroxy-).

It is the authors’ responsibility to provide correct nomenclature. Structures should be included for uncommon chemicals, particularly when the systematic or common name is too complex or unclear to readily denote the structure. Such structures should be included as a figure or table. All nomenclature must be consistent and unambiguous and should conform with current American usage. Insofar as possible, authors should use systematic names similar to those used by Chemical Abstracts Service, the International Union of Pure and Applied Chemistry, and the International Union of Biochemistry and Molecular Biology. Chemical Abstracts (CA) nomenclature rules are described in Appendix IV of the Chemical Abstracts Index Guide. For CA nomenclature advice, consult the Manager of Nomenclature Services, Chemical Abstracts Service, P.O. Box 3012, Columbus, OH 43210-0012. A name generation service is available for a fee through CAS Client Services, 2540 Olentangy River Road, P.O. Box 3343, Columbus, OH 43210-0334 [telephone (614) 447-3870; fax (614) 447-3747; e-mail answers@cas.org]. In addition, the ACS Web site has links to nomenclature recommendations at http://chemistry.org.

ACKNOWLEDGMENT
Include essential credits but hold to an absolute minimum. Omit academic and social titles. Meeting presentation data and acknowledgment of financial support of the work should not be
included here; give these instead in a note following the References. It is the responsibility of the corresponding author to notify individuals named in the Acknowledgment.

**FUNDING SOURCES**

During manuscript submission, the submitting author is asked to select funding sources from the list of agencies included in the FundRef Registry [http://www.crossref.org/fundref/](http://www.crossref.org/fundref/).

**REFERENCES**

Consult *The ACS Style Guide* and current issues of the *Journal* for examples of reference format. Authors should cite all prior published work directly pertinent to the manuscript. However, extensive bibliographies that go beyond a direct connection with the manuscript are discouraged. Prior work can often be covered by citation of a few leading references or of review articles. As a general guideline, authors should attempt to limit the literature cited to approximately 50 or fewer citations (except for review or perspective manuscripts).

Authors are responsible for the accuracy of their references. References taken from a review or other secondary source should be checked for accuracy with the primary source.

References should be listed on a separate page and numbered in the order in which they are cited in the text.

References should be cited in the text by superscript numbers, for example, 1,2,5, etc.

Give complete information, using the last name and initials of the author, patentee, or equivalent; do not use “Anonymous”.

Follow *Chemical Abstracts Service Source Index* for abbreviations of journal titles. Because subscribers to the Web edition of the *Journal* are now able to click on the “Chemport” or other tag following each reference to retrieve the corresponding abstract from various Web resources, reference accuracy is critical.

Typical references follow the styles given below.

For journals:


   (Issue number must be used if each issue of the periodical begins with page 1.)

For books:


For Web pages:

3. Black, A.; White, B. Page title. URL (http://...) (most recent access date).

Papers should not depend for their usefulness on unpublished material, and excessive reference to material “in press” is discouraged. Reference to the authors’ own unpublished work is permitted if the subject is of secondary importance to the manuscript in question, but any unpublished results of central importance must be described in sufficient detail within the manuscript. **If pertinent references are “in press” or unpublished for any reason, furnish copies to enable reviewers to evaluate the manuscript. An electronic copy of these materials should be uploaded according to the directions for review-only Supporting Information.**
“In press” references should include the Digital Object Identifier (DOI) assigned by the potential publisher.

TABLES AND ARTWORK
The tables and graphics (illustrations) should be inserted in the manuscript file after the References section. Do not upload tables and graphics that are to be published with the manuscript as Supporting Information files.

Tables and figures should be carefully designed to maximize presentation and comprehension of the experimental data with superfluous information excluded. Useful information not directly relevant to the discussion may be included under Supporting Information.

Tables. Tables may be created using a word processor’s text mode or table format feature. The table format feature is preferred. Ensure each data entry is in its own table cell. Lower case should be used for all table entries unless a capital letter is required. If the text mode is used, separate columns with a single tab and use a line feed (enter) at the end of each row.

Tables should be numbered consecutively with Arabic numerals and should be grouped after the figure captions. Footnotes in tables should be given letter designations and be cited in the table by italic superscript letters. The sequence of letters should proceed by row rather than by column. Each table should be provided with a descriptive heading, which, together with the individual column headings, should make the table, as nearly as possible, self-explanatory. In setting up tabulations, authors are requested to keep in mind the type area of the journal page (17.8 × 25.4 cm), and the column width (8.5 cm), and to make tables conform to the limitations of these dimensions. Arrangements that leave many columns partially filled or that contain much blank space should be avoided. Conversely, arrangements that include >20 columns should be broken into two tables if possible. If significance of values is to be indicated, use a lower case letter, on line, one space after the value.

Figures and Artwork. The preferred submission procedure is to embed graphic files in a Word document. It may help to print the manuscript on a laser printer to ensure all artwork is clear and legible. Artwork should be sequentially numbered using Arabic numbers. Schemes and charts may have titles and footnotes; figures should have captions. Insert the captions following the References and the graphics after the Tables.

Additional acceptable file formats are TIFF, PDF, EPS (vector artwork), or CDX (ChemDraw file). If submitting individual graphic files in addition to their being embedded in a Word document, ensure the files are named according to graphic function (i.e., Scheme 1, Figure 2, Chart 3), not the scientific name. Labeling of all figure parts should be present, and the parts should be assembled into a single graphic. For EPX files, ensure that all fonts are converted to outlines or embedded in the graphic file. The document setting should be in RGB mode. Note: Although EPS files are accepted, the vector-based graphics will be rasterized for production. Please see below for TIFF file production resolutions.

TIFF files (either embedded in a Word document or submitted as individual files) should have the following resolution requirements: black and white line art, 1200 dpi; grayscale art (a monochromatic image containing shades of gray), 600 dpi; color art (RGB color mode), 300 dpi.

The RGB and resolution requirements are essential for producing high-quality graphics within the published paper. Graphics submitted in CMYK or at lower resolution may be used; however, the colors may not be consistent. Graphics of poor quality may not be able to be improved.
Most graphic programs provide an option for changing the resolution when images are saved. Best practice is to save the graphic file at the final resolution and size using the program used to create the graphic.

For bar charts, bars with hatching patterns generally reproduce well. Bars that range in shading from light to dark gray to black can usually be reproduced successfully, although we do not recommend any more than two shades of gray. A legend needs to be included within the figure itself rather than the patterns or shades included in the caption.

For manuscripts containing gel patterns, use of a high-resolution digital scanner is recommended. Only high-quality original, unaltered digital reproductions will allow reviewers to correctly verify the experimental results. For an example of gel patterns see J. Agric. Food Chem. 2004, 52, 5717–5723, Figures 2 and 3.

Only readable and accurately represented images are acceptable; the Editors reserve the option to reject images that do not satisfactorily support points made in the manuscript or that are not of satisfactory quality for publication.

The quality of the illustrations published in the Journal largely depends on the quality of the originals provided. Figures cannot be modified or enhanced by the journal production staff. Contrast is important. Each figure or photograph should be properly labeled.

Graphics should be sized at the final production size when possible. Single-column graphics are preferred and can be sized up to 240 points (3.33 in.). Double-column graphics must be sized between 300 and 504 points (4.167 in. and 7 in.). All graphics have a maximum depth of 660 points (9.167 in.) including the caption (please allow 12 points for each line of caption text). Consistently sizing letters and labels in graphics throughout the manuscript will help to ensure consistent graphic presentation for publication. Lettering should be no smaller than 4.5 points. (Helvetica or Arial type works well for lettering.) Lines should be no thinner than 0.5 point. Lettering and lines should be of uniform density. Avoid the use of very large and very small lettering within the same figure.

If artwork that must be reduced will be submitted, use larger lettering and thicker lines so that, when reduced, the artwork meets the above-mentioned parameters.

Avoid using complex textures and shading to achieve a three-dimensional effect. To show a pattern, choose a simple crosshatch design.

Color illustrations should be submitted only if they are essential for clarity of communication. Reproduction of color illustrations will be provided at no cost to the author. Do not submit color prints to be printed in black and white.

**Structural Formulas.** Structural formulas should be included for all new chemicals and for existing chemicals for which chemical nomenclature and/or trivial names do not convey the structure adequately. Structural formulas are valuable in expressing concisely the precise nature of the compounds under discussion and revealing the essence of the subject to readers unfamiliar with the topic, without their necessary recourse to reference materials. The use of chemical names without accompanying structures may cause readers to overlook the significance of the paper.

Structures should be produced with the use of a drawing program such as ChemDraw. Structure drawing preferences (preset in the ACS Stylesheet in ChemDraw) are as follows:

```
as drawing settings select…
   chain angle       120°
```
Using the ChemDraw ruler or appropriate margin settings, create structure blocks, schemes, and equations having maximum widths of 11.3 cm (one-column format) or 23.6 cm (two-column format). Note: if the foregoing preferences are selected as cm values, the ChemDraw ruler is calibrated in cm. Also note that a standard sheet of paper is only 21.6 cm wide, so all graphics submitted in two-column format must be prepared and printed in landscape mode.

Use boldface type for compound numbers but not for atom labels or captions.

Authors using other drawing packages should, as far as possible, modify their program’s parameters to reflect the above guidelines.

For more information, please visit http://pubs.acs.org/page/4authors/submission/index.html.

**TABLE OF CONTENTS GRAPHICS**

Authors of research articles, perspectives, and reviews are required to include a suitable graphic for publication in the table of contents (TOC) in the Web edition of the *Journal*. Submission of this graphic is mandatory. This graphic should capture the reader’s attention and, in conjunction with the manuscript’s title, give the reader a quick visual impression of the type of chemistry described. Structures should be constructed as specified under Structural Formulas above. The TOC graphic may be up to 3.25 in. (8.5 cm) wide and 1.75 in. (4.75 cm) tall. (See detailed instructions at the Paragon Plus Web site.) Text should be limited to labels for compounds, reaction arrows, and figures. The use of color to enhance the scientific value is encouraged. The TOC graphic should be inserted on a separate page at the end of the manuscript file. A guide to TOC graphics is available here: [http://pubs.acs.org/paragonplus/submission/toc_abstract_graphics_guidelines.pdf](http://pubs.acs.org/paragonplus/submission/toc_abstract_graphics_guidelines.pdf).

**SUPPORTING INFORMATION**

Extensive tables, graphs, spectra, calculations, and other material beyond a modest content in the published paper may be included in the Web edition of the *Journal*. These will not be part of the published article but can be accessed separately on the Web by readers.

Supporting Information must be submitted at the same time as the manuscript and uploaded separately to the ACS Paragon Plus environment. A list of acceptable file types is available on the Web. All Supporting Information files of the same type should be prepared as a single file.
(rather than submitting a series of files containing individual images or structures). For example, all Supporting Information available as PDF files should be contained in one PDF file.

The material should be described in a paragraph inserted between the Acknowledgment and the References sections, using the following format: “Supporting Information Available: Description. This material is available free of charge via the Internet at http://pubs.acs.org.”

Components of the Supporting Information should be clearly labeled with all necessary figure captions and table titles and footnotes.

**DO NOT UPLOAD FIGURES AND TABLES THAT ARE TO BE PUBLISHED IN THE ARTICLE INTO THE SUPPORTING INFORMATION FILE.** Figures and tables that will appear in the published article are to be inserted in the manuscript directly after the References section.

**CONFLICT OF INTEREST**

A statement describing any financial conflicts of interest or lack thereof is published with each manuscript. During the submission process, the corresponding author must provide this statement on behalf of all authors of the manuscript. The statement should describe all potential sources of bias, including affiliations, funding sources, and financial or management relationships, that may constitute conflicts of interest (please see the Ethical Guidelines). The statement will be published in the final article. If no conflict of interest is declared, the following statement will be published in the article: “The authors declare no competing financial interest.”

**CURRENTLY ACCEPTABLE WORD-PROCESSING PACKAGES**

Refer to the Paragon Plus environment Web site for acceptable software packages.

**Using TeX/LaTeX**

ACS Publications supports TeX/LaTeX version 2.0.2 and earlier. For best results, submit your author-generated Manuscript PDF File—and provide your native TeX/LaTeX manuscript package as a ZIP Archive. Note that your submission must include all referenced files, including all necessary resource files such as bibliographic and style files, images, etc. Use of the freely available achemso style package to help prepare your submission is strongly encouraged. See Preparing and Submitting Manuscripts Using TeX/LaTeX for complete instructions.

**REVISIONS AND RESUBMISSIONS**

For all revisions:

- Clearly identify the manuscript as a revision; reference the manuscript number.
- Include an itemized list of changes, with a response to each comment made by the Editor and by each reviewer.
- Be aware that the manuscript may be sent for additional review, to the same or additional reviewers, at the discretion of the Editor.
- Please upload the signed Journal Publishing Agreement or fax it to the assigned Editor.

For all resubmissions:
- Clearly identify all resubmissions; reference the previous manuscript number.
- Include an itemized list of changes, including a response to each comment made by the Editor and by each reviewer.
- Please upload the signed Journal Publishing Agreement or fax it to the assigned Editor.

**JOURNAL PUBLISHING AGREEMENT**

A properly completed and signed Journal Publishing Agreement (JPA) must be submitted for each manuscript. ACS Paragon Plus provides an electronic version of the JPA that will be available on the My Authoring Activity tab of the Corresponding Author's Home page once the manuscript has been assigned to an Editor. A PDF version of the Agreement is also available, but authors are strongly encouraged to use the electronic JPA. If the PDF version is used, **all pages of the signed PDF JPA must be submitted**. If the corresponding author cannot or should not complete either the electronic or PDF version for any reason, another author should complete and sign the PDF version of the form. Forms and complete instructions are available at [http://pubs.acs.org/page/copyright/journals/index.html](http://pubs.acs.org/page/copyright/journals/index.html). For questions about the form or about signing the form, contact the ACS Copyright Office at (202) 872-4368 or -4367.

**Note:** Authors who are not U.S. Government employees or bona fide agents should sign Part A of the form only. If ALL of the authors were employees or bona fide agents of the U.S. Government when the paper was prepared, the work is a work of the U.S. Government and only Part B, “U.S. Government Employees”, should be signed if BOTH of the following circumstances apply:

- ALL authors are or were bona fide officers or employees of the U.S. Government when the paper was prepared.
- The work is a work of the U.S. Government, prepared by an officer/employee of the U.S. Government as part of official duties.

If the work was prepared under a U.S. Government contract or is coauthored by a non-U.S. Government employee, the work is not a work of the U.S. Government; **DO NOT SIGN PART B**. Sign only Part A of the form. Call the ACS Copyright Office at the above telephone number for assistance.

**PROOFS AND REPRINTS**

**Proofs.** The corresponding author of an accepted manuscript will receive e-mail notification and complete instructions when page proofs are available for review via a secure Web site. Authors will access the secure site through ACS ChemWorx and will need an ACS ID. To obtain an ACS ID or to reset your password, go to [www.acschemworx.org](http://www.acschemworx.org).

It is the responsibility of the corresponding author to ascertain that all coauthors agree with the corrections before the corrections are returned. Corrections should be designated by galley proof line number. Galley proof corrections should be returned within 48 h of receipt to ensure timely publication of the manuscript. Routine rephrasing of sentences or additions are not permitted at the page proof stage. Alterations should be restricted to serious changes in interpretation or corrections of data. Extensive or important changes on page proofs, including changes to the title or list of authors, are subject to Editorial review.

**ACS Policies for E-prints and Reprints.** Under the [ACS Articles on Request policy](http://pubs.acs.org/page/copyright/journals/index.html), the Society will provide (free of charge) to all contributing authors a unique URL within the ACS Web site that they may e-mail to colleagues or post on external Web sites. These author-directed
links are designed to facilitate distribution of an author’s published work to interested colleagues in lieu of direct distribution of the PDF file by the author. The ACS Articles on Request policy allows 50 downloads within the first year after Web publication and unlimited access via the same author-directed links 12 months after Web publication.

The ACS AuthorChoice option establishes a fee-based mechanism for authors or their research funding agencies to sponsor the open availability of their articles on the Web at the time of online publication. Effective January 1, 2014, ACS AuthorChoice will be expanded to offer authors a wider range of open access license options, such as Creative Commons licenses and provisions for immediate or 12-month embargoed open access, both coupled with a new ACS Certified Deposit service. For complete details see http://acsopenaccess.org/.

When authors are sent the proof of their paper, they will receive a link to a Web site where they may order author reprints. They may also call Cierant Corporation, (866) 305-0111, from 9 a.m. to 5 p.m. EST. Reprints will be shipped within two weeks after the issue publication date. Neither the Editors nor the Washington ACS Office keeps a supply of reprints; requests for single copies of papers should be addressed to the corresponding author of the paper concerned.

REPORTING SPECIFIC DATA

Bioactivity. Manuscripts reporting on bioactivity of plant-derived or other extracts must also include identification and characterization of individual chemicals responsible for the observed bioactivity.

For peptide studies, such as anti-ACE peptides, the authors should provide the in vivo animal (or human) data to substantiate activity of the peptides studied and, if no in vivo data are provided, the chemistry must be novel and the amount of work substantial.

Gas Chromatographic Methods. For manuscripts in which gas chromatographic methods are used, see “Reporting of Gas Chromatographic Methods”, by Morton Beroza and Irwin Hornstein [J. Agric. Food Chem. 1973, 21, 7A (located at the back of the January 1973 issue or as a link from the Journal’s Author Information page)]. Consult recent issues for examples of GC, LC, and other instrument parameter descriptions.

Spectroscopic Data. This is a guide only; in certain cases different methods of data presentation may be more suitable. Authors are encouraged to consult examples of data presentation published in recent issues of the Journal for appropriate style and format. Complete infrared, NMR, mass, or other spectra will be published only if novel or necessary to substantiate points made under the Results or Discussion sections. Such presentations take up valuable space, and essentially the same information can frequently be put into a much more compact form by simply listing the position and intensity of the maxima. It is usually not necessary to list all of the maxima in the spectra to provide an adequate description. Report the type of instrument used (e.g., in mass spectrometry, whether magnetic, quadrupole, time-of-flight, etc.) and also the type of cell, the solvent (if any), and the state of the sample (whether liquid, gas, solution, etc.).

Mass Spectra. List the molecular ion and about 10 of the major ions with their intensities in parentheses, or more preferably use the method outlined by H. S. Hertz, R. A. Hites, and K. Biemann (Anal. Chem. 1971, 43, 681–691). This method involves dividing the spectrum into consecutive regions of 14 mass units starting at m/z 6 (i.e., 6–19, 20–33, 34–47, 48–61, etc.). The two most intense ions in each region are then listed. Intensities, relative to the most intense ion, the intensity of which is taken as 100, are shown in parentheses immediately following the m/z value; for example: hexanal, mass spectrum found (70 eV, two most intense ions each 14 mass units above m/z 34): 43 (86), 44 (100), 56 (86), 57 (65), 71 (28), 72 (33), 82 (18), 85 (5), 97 (2),
100 (2). If the molecular ion does not appear in this presentation, the author should indicate it separately.

**Nuclear Magnetic Resonance (\textsuperscript{1}H NMR or \textsuperscript{13}C NMR) Spectra.** A document providing detailed information for the presentation of NMR data is now available through “Information for Authors and Reviewers” on the Journal’s home page.

The frequency, the solvent, and also the temperature (if other than ambient) used are first specified. The type of unit used (δ or τ) is then stated, followed by the position of the center of gravity of the sharp line, broad line, or spin–spin multiplet in these units. This is then followed by information in parentheses which (1) describes the type of splitting, that is, singlet as s, doublet as d, triplet as t, quadruplet as qd, multiplet as m; (2) gives the value of the number of protons the area represents; (3) gives the coupling constant $J$; and (4) gives the part of the molecule connected with the particular absorption with the protons involved underlined.

An example would be \textsuperscript{1}H NMR for ethanol (60 MHz, CCl\textsubscript{4}): $\delta$ 1.22 (t, 3, $J = 7$ Hz, CH\textsubscript{2}CH\textsubscript{3}), 2.58 (s, 1, OH), 3.70 (qd, 2, $J = 7$ Hz, OCH\textsubscript{2}CH\textsubscript{3}).

**Other Spectra.** In general, list position and intensity of the maxima. In some cases it may be desirable to list points of inflection.

A brief explanation should be given for any abbreviations not in common use.

Examples:


**Novel Compound Characterization.** For a discussion of the Journal’s expectations for compound characterization, please read “Compound Identification: A Journal of Agricultural and Food Chemistry Perspective” by R. J. Molyneux and P. Schieberle. *J. Agric. Food Chem.* 2007, 55, 4625–4629 ([DOI: 10.1021/jf070242j](https://doi.org/10.1021/jf070242j)). It is essential that novel compounds, either synthetic or isolated from natural sources, be characterized rigorously and unequivocally. Supporting data normally include physical form, melting point (if solid), UV/IR spectra if appropriate, \textsuperscript{1}H and \textsuperscript{13}C NMR, mass spectrometric data, and optical rotation (when compounds have chiral centers).

Examples:


**Flavor Constituents.** Manuscripts reporting on flavor constituents should conform to the recommendations made by the International Organization of the Flavor Industry [for details, see the Editorial in the October 1996 issue of *J. Agric. Food Chem.* (44, 2941–2941)]. In brief, any identification of a flavoring substance must pass scrutiny of the latest forms of available analytical techniques. **In practice, this means that any particular substance must have its identity confirmed by at least two methods, for example, comparison of chromatographic and spectrometric data (which may include GC, MS, IR, and NMR) with those of an authentic sample.** If only one method has been applied (MS data alone or retention index or Kovats index alone), the identification shall be labeled “tentative”. In addition, authors are encouraged to include at least semiquantitative data on the concentration of an identified component in the original source, for example, foodstuff or plant part. Ranges such as <1 µg/kg, 1–10 µg/kg, and 10–100 µg/kg are acceptable.

Flavor is evoked by smell (aroma) and taste. A good example showing the correct characterization of taste compounds is the study by Czepa and Hofmann (*J. Agric. Food Chem.* **2003**, 51, 3865–3873). A good example for aroma compound identification is the study by Milo and Grosch (*J. Agric. Food Chem.* **1996**, 48, 2366–2371).

The use of reference compounds is a must, if data on sensory properties of single compounds are reported. Odor, which is perceived during snifffing of a food extract at a certain retention index, may be indicative of the presence of a given compound, but not conclusive unless substantiated by chromatographic and/or spectrometric data and comparison with an authentic reference compound.


This requirement is to allow comparison and extrapolation to other work giving similar soil classifications, as published in journals such as the *Journal of Soil Science*, *Soil Science Society of America Journal*, *Journal of Environmental Quality*, and *Geoderma*. If information is unavailable to classify the soils at the desired family level, classification should be described or estimated at least to the great group level in the same classification system.


**Metabolomics.** This category considers applications of metabolomics as related to research topics in agriculture, food, and nutrition, in particular metabolite-targeted analysis and progress in the development of analytical platforms for metabolomics approaches. A metabolome is the quantitative set of chemical compounds in a biological system, i.e., a food, at a given time. However, also metabonomics studies, focused on changes in a given metabolome, e.g., induced by environmental conditions or diseases, fall into this category.
Metabolic profiling and metabolomic fingerprinting correlated with multivariate or data-mining methods are acceptable, if presented in a targeted way. For additional information consult “Targeted Metabolomics: A New Section in the Journal of Agricultural and Food Chemistry” by J. N. Seiber, R. J. Molyneux, and P. Schieberle, J. Agric. Food Chem. 2013, DOI: 10.1021/jf4046254.

**Animal or Human Studies.** Manuscripts describing studies in which the use of live animals or human subjects is involved must include under Materials and Methods a statement that such experiments were performed in compliance with the appropriate laws and institutional guidelines, and also name the institutional committee that approved the experiments. For experiments with human subjects, a statement that informed consent was obtained from each individual must be included and the consent forms made available to the Journal on request. Reviewers of manuscripts involving animal or human experiments will be asked to comment specifically on the appropriateness and conformity to regulations of such experiments. **Authors are encouraged to note the approval code or number or give the name of the approving office of official.**

**Animal Subjects.** The use of animals in a study should be employed only when there are no alternative methods for investigating the fundamental questions of the study. In such cases, **it is the ethical responsibility of all authors to ensure that the care of animals is of the highest possible order, that pain and/or distress is minimized, and that the numbers involved are strictly limited to those essential to fulfill the experimental design.** In the United States the care and use of laboratory animals is regulated by the U.S. Department of Agriculture (USDA) under the Animal Welfare Act. Links to the regulations and other information are available at [http://www.aphis.usda.gov/animal_welfare/](http://www.aphis.usda.gov/animal_welfare/). It is recognized that researchers in other countries may be governed by different laws and regulations. In such cases, experiments should be designed to conform either to the above USDA regulations or to the International Guiding Principles for Biomedical Research Involving Animals (1985), available at [http://www.cioms.ch/publications/guidelines/1985_texts_of_guidelines.htm](http://www.cioms.ch/publications/guidelines/1985_texts_of_guidelines.htm).

**Human Subjects.** The use of human subjects in experimental studies requires informed consent. Such consent requires that the subjects be informed completely not only about the procedures involved but also about the aims, design, and expected outcomes of the study. Consent must be obtained not only when subjects are involved directly in the study but also when samples (tissue, blood, plasma, etc.) are required for in vitro experiments. In the United States the protection of human research subjects is regulated by the U.S. Department of Health and Human Services (HHS). Regulations are available at [http://www.hhs.gov/ohrp/](http://www.hhs.gov/ohrp/). Laws and regulations governing researchers in other countries must be observed, but experiments should be designed to conform to the intent of the HHS regulations as far as possible.

In relation to the subject matter of the Journal, experiments involving taste and food quality evaluation and consumer acceptance are exempt from the above regulations [CFR 46.101 (b) (6)]. However, it should be noted that this would not exempt studies in which extracts, isolates, pure compounds, etc., obtained from conventional food sources are subjected to such evaluation. The Journal will reject any manuscript for which there is reason to believe that animals have been subjected to unnecessary pain or distress or when informed consent of human subjects is absent or incomplete.
Editor Contact Information:

James N. Seiber, Editor
*Journal of Agricultural and Food Chemistry*
Department of Environmental Toxicology
University of California
One Shields Avenue
Davis, California 95616
U.S.A.
Telephone (530) 754-7005
E-mail jafc@jafc.acs.org