Phytochemistry is a leading international journal publishing studies of plant chemistry, biochemistry, molecular biology and genetics, structure and bioactivities of phytochemicals, including 'omics' and bioinformatics/computational biology approaches. Phytochemistry is a primary source for papers dealing with phytochemicals, especially reports concerning their biosynthesis, regulation, and biological properties both in planta and as bioactive principles. Articles are published online as soon as possible as Articles-in-Press and in 12 volumes per year. Occasional topic-focussed special issues are published composed of papers from invited authors.

Article types

Full papers are original research papers reporting new discoveries that lead to a deeper understanding of any aspect of plants covered by the journal. Full papers are invited in the following sections, but these are not exclusive.

Molecular Genetics and Genomics contains papers which demonstrate novelty and/or biological significance in relation to all aspects of gene structure and expression, and their role in plant function, regulation, comparative genomics, and reconstitution of biochemical pathways. This section may also contain studies of genetically modified plants that have been analysed for changes in their profiles of phytochemical production.

Protein Biochemistry and Proteomics contains reports on plant proteins, including their purification directly from the organism or as a result of heterologous expression. This section includes studies of the macromolecular structure of proteins, protein function, enzyme mechanism, and proteomics, including in relation to changed genetics, environment or metabolism.

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Ecological Biochemistry and Chemistry contains papers on how plants interact with their environment, including adaptation to environmental stress, symbiosis, interactions with other
organisms, phytoalexins, phytotoxins, pollination (bio)chemistry, and the use of phytochemicals by other organisms.

**Chemistry and Bioactive Products** contains papers on structural elucidation and in planta and in vitro activities of newly identified phytochemicals, including studies that elucidate their role and mode of action in nutritional, pharmacological, medical or therapeutic use. Studies of the biological activity of known compounds will only be considered when they add significant insight to the way in which the biological action of the phytochemical(s) is manifest.

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**Reviews** are an authoritative and timely overview in a defined area and are intended to catch the interest of the general reader. A Review is a critical analysis of the current state of knowledge, pointing out strengths and weaknesses, weighing the significance of the studies conducted, how these fit into the more general subject area, and what are the key areas for further work. Authors should consult the Editor-in-Chief before preparing such articles.

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Further details of these categories are given in the Guide for Authors.

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Organic Chemists, Plant Chemists, Plant Biochemists, Plant Molecular Biologists, Chemical Ecologists and Natural Product Chemists.

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GUIDE FOR AUTHORS

INTRODUCTION

*Phytochemistry* invites research articles on all aspects of pure and applied plant chemistry, plant biochemistry, plant molecular biology and chemical ecology. The Journal is currently divided up into the following sections:

Editorial Comment, Molecules of Interest, Review Articles, Structural Elucidation and Full Papers.

*Editorial Comment* will be an occasional series where Regional Editors, Board Members or other scientists will be invited to comment on phytochemistry topics of global interest and debate.

*Molecules of Interest* will consist of invited short reviews (3-4) printed pages of individual compounds or macromolecules of plant, fungal or algal origin. These can be novel compounds or newly discovered properties of familiar compounds. Please contact Dr Richard J Robins if you wish to prepare a Molecules of Interest paper.

*Review Articles* are published at regular intervals, ranging in scope from primary metabolism and regulation of plant growth, through plant enzymology to natural product chemistry and the biological activity of plant products. They deal with significant new areas of research and are intended to command the interest of the general reader. Authors should consult their Regional Editors with an outline of their proposed Review before preparing such articles. Published Reviews include a biography and picture of each author.

*Structure Elucidation* papers, accepted as full papers in the Chemistry section, should include either a substantial description of several new compounds without any conclusion as to their significance, or a description of the study of new compounds with expected structures incorporating conclusions. These papers with a minimum of 16 pages of double-spaced manuscript should follow the general style of Full Papers although the Introduction, Results and Discussion may be combined as a single narrative. Brief abstracts must be included, containing significant facts derived from the work. Reports of known compounds, however rare, from new plant sources will not generally be accepted unless they have real chemotaxonomic or other biological significance. Authors are specifically discouraged from submitting papers as fragmented analyses of particular plant constituents.

*Full Papers*: Full journal articles will be drawn from areas described in the Aims and Scope:
- Bioactive Products
- Chemotaxonomy
- Chemistry
- Ecological Biochemistry
- Metabolism
- Molecular Genetics & Genomics
- Protein Biochemistry & Proteomics
- Update in Bioinformatics

They are comprehensive papers, typically 6-8 printed pages in length (a minimum of 20 pages of double-spaced manuscript). Papers on plant chemistry must be substantial and contain convincing justification for undertaking the study, as well as having conclusions (e.g. on the biology, chemotaxonomy, new biosynthetic pathways etc.). Papers submitted under the Bioactive Products area are unlikely to be accepted if the bioactivity is measured on a mixture of compounds without further resolution.

*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.

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**PREPARATION**

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State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.


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Abbreviations
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Aqueous: aq.
Circular dichroism: CD
Concentrated (or mineral acids): conc.
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Literature: lit.
Mass: pg, ng, μg, mg, g, kg
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Melting points: uncorr. (uncorrected)
Molecular mass: Da (daltons), kDa
Molecular weight: Mr
Nuclear magnetic resonance: 1H NMR, 13C NMR, Hz, δ
Numbers: e.g. 1, 10, 100, 1000, 10,000: per or -1
Optical rotatory dispersion: ORD
Paper chromatography: PC
Precipitate: ppt.
Preparative thin-layer chromatography: prep. TLC
Radioactivity: dpm (disintegrations per min), Ci (curie), sp. act (specific activity), Bq (1 becquerel = 1 nuclear transformation/sec)
Repetitive manipulations: once, twice, \( \times 3 \), \( \times 4 \), etc.

\( R_{Rt} \) (relative retention time), \( R_t \) (Kovat's retention index), ECL (equivalent chain length - term frequently used in fatty acid work)

Saturated: satd.
Solution: soln.
Solvent mixtures including chromatographic solvents: abbreviate as follows \( n\text{-BuOH--HOAc--H}_2\text{O} \) (4:1:5)

Statistics: LSD (least significant difference), s.d. (standard deviation), s.e. (standard error)
Temperature: (with centigrade), mp, mps, mmp, bp
Temperature: temp.
Thin-layer chromatography: TLC, \( R_f \)
Time: s, min, h, day, week, month, year
Ultraviolet spectrophotometry: UV, \( A \) (absorbance, not OD - optical density)
Volume: l (litre), \( \mu l, ml \)
Weight: wt

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Spectrom. Ion Processes, 142, 211-240 (1995), and must indicate the method used (EIMS, CIMS, GC-MS, TOFMS, FABMS, SIMS, APCI etc.) and the relevant experimental details (ionizing energy, voltages etc.). The data should give only diagnostically important ions, the character of the fragmentation ions in relation to the molecular ion and the intensity relative to the major ion. For example-EIMS (probe) 70 eV, \( m/z \) (rel. int.): \( 386 \ [M]^+ \) (36), \( 368 \ [M - H_2O]^+ \) (100), \( 353 \ [M - H_2O - Me]^+ \) (23), \( 275 \ [M - 111]^+ \) (35), etc. CIMS (iso-butane, probe), 200 eV, \( m/z \) (rel. int.): \( 387 \ [M + H]^+ \) (100), \( 369 \ [M + H - H_2O]^+ \) (23), etc. High-resolution spectra can be given in more detail if necessary for \([M]^+\) and the more important fragment ions.

X-ray crystallography

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Elemental analysis results for compounds which have been adequately described in the literature must be given in the form: (Found: C, 62.9; H, 5.4. Calc. for C13H13O4N: C, 63.2; H, 5.3%). New compounds must be indicated by giving analytical results in the form: (Found: C, 62.9; H, 5.4. C13H13O4N requires: C, 63.2; H, 5.3%).

Thin-layer chromatography

(a) For analytical TLC, dimensions of the plates can be deleted if layer thickness is 0.25 mm.
(b)Abbreviate common adsorbents: (but use silica gel, not SiO2 as this does not describe the material accurately), Al2O3 (alumina).
(c) Preparative forms of the technique should include details of (i) layer thickness (preparative TLC only), (ii) amount of sample applied to the layer, (iii) method of detection used to locate the bands and (iv) the solvent used to recover the compounds from the adsorbent after development.
(d) Special forms of TLC on impregnated adsorbents can be abbreviated, e.g. AgNO3-silica gel (1:9), by wt can be assumed.
(e) Solvent mixtures should be specified as under **Abbreviations** above.

Gas chromatography

(a) Detector used should be specified, e.g. dual FID, EC, etc.
(b) Carrier gas and flow rate or inlet pressure should be given, e.g. N2 at 3 ml min-1/10 psi.
(c) Operating conditions, such as injector and detector heater temperatures, oven temperature programme, should be included.
(d) Packed columns, e.g. 6 m x 3 mm (i.d. measurement only) packed with 1% SE-30 (support material and mesh size can be omitted unless unusual).
(e) Capillary columns the type (e.g. WCOT, SCOT), manufacturer’s designation (e.g. DB5) and dimensions (length, internal/external diameter, film thickness) should be specified.

High performance liquid chromatography

(a) Solvent or solvent gradients used together with flow rate should be given.
(b) Column dimensions (length x i.d. only) and packing used.
(c) Method of detection employed, e.g. UV or refractive index.

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Enzyme characterization
(a) Enzyme activity is expressed in units of katals (symbol kat), the conversion of one mol of substrate per sec. It should be made clear that the measurements were made under specified optimum conditions and were not seriously affected by losses during extraction and analysis.
(b) pH optima should be given together with pH values for half maximal activity.
(c) Kinetic parameters should be expressed as $V_{\text{max}}$, $K_m$ etc.
(d) Enzyme inhibitors-effectiveness should be expressed as $K_i$ or concentration for half-maximal activity.
(e) Optimal temperature of enzymes should not be given. This should be expressed in terms of "Energy of Activation" and "Energy of Activation for Denaturation".
(g) Labeling of proteins and nucleic acids-use of labeled precursors in assessing the rate of synthesis of macromolecules must be validated by evidence of real, direct incorporation. The possibility of occlusion or adsorption of isotopic material should be noted and it should be shown that the labeled precursor is incorporated without prior catabolism.

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