

VOUS SAVEZ, LES SCIENTIFIQUES
SONT DES GENS COMME
TOUT LE MONDE!

"ARRÊTONS
D'AVOIR
PEUR!"

HA HA HA!



Chapter II : Critical reading of a scientific article; Course 1

**SAIT-DIB Sabrina MCA à
Université de Bejaia**

2023/2024

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Course description

1. Why must scientists publish?
2. Definition of a Scientific Journal
3. Definition of the scientific article
4. The different types of articles published
5. Structure of a scientific article
6. The keys to the scientific text

■ Why must scientists publish?



The current system for validating scientific work is based on publication.

Observation

scientific communication

Research

are closely linked and complementary.

But it is not enough for the scientist to communicate their research findings to other researchers in one form or another (for example, through an oral presentation at a seminar or conference)

■ Why must scientists publish?



What to do?



they must publish these results in primary journals (a scientific journal) because "without publication, science is dead."

That's why the researcher must not only "do science" but also "write their science";





the databases



<http://sci-hub.bz>



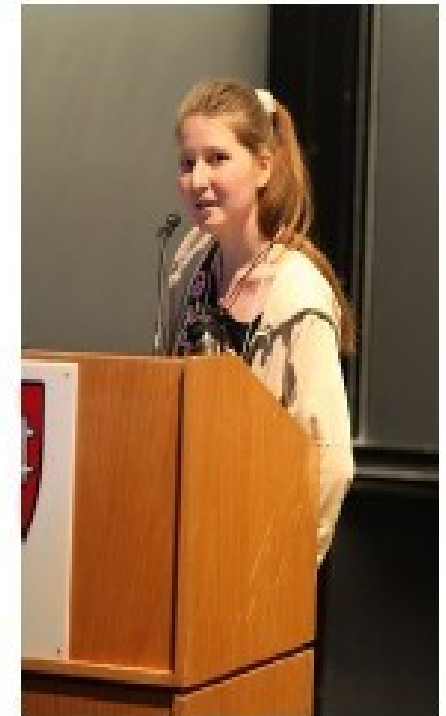
Sci-hub: 64,5 Millions d'articles scientifiques
contournent les paywalls (« péages »)



Kazakhstan



Russie



Alexandra Elbakyan
Fondatrice de Sci-Hub
5 septembre 2011

Within the scientific community, information is primarily disseminated through scientific publications. These now hold a paramount position in research. They constitute the very goal of scientific research since a researcher is generally evaluated based on their publications.

Au sein de la communauté scientifique, la diffusion de l'information se fait essentiellement par le biais des publications scientifiques. Celles-ci occupent aujourd'hui une place prépondérante dans la recherche. Elles constituent le but même de la recherche scientifique puisqu'un chercheur est généralement évalué sur la base de ses publications.

N.B: in addition to scientific communication (oral and written), there has been the emergence of new forms of communication through electronic media (e-mail, blogs, electronic scientific journals).

II. Definition of a Scientific Journal

It is a **serial publication**, issued regularly, with a registered title and **composed** of a **series of articles** evaluated by a **review committee** based on scientific criteria..

Il s'agit d'une publication en série, parue régulièrement, avec un titre enregistré et composée d'une série d'articles évalués par un comité de révision sur la base de critères scientifiques.

III. Definition of the scientific article

It is a **scientific document** in the form of a **written report** that **is published** and describes the **original results** of **research**, or it is **a contribution** that has been **evaluated** and **published** in a **standardized** form in a **scholarly journal**.

To remember: A scientific article:

- ✓ is evaluated and validated, before its publication, by a review committee or a group of experts, who either accept or reject it, and in case of acceptance, often suggest modifications before publication and dissemination.
- ✓ it is published in a specialized periodical, in a conference report or proceedings, or in a collective work,
- ✓ it emanates from a specialist, an expert, recognized by their peers,
- ✓ it always builds(s'appuie) on other works and cites its sources (bibliography, footnotes, etc.).

The importance of a scientific article

The scientific article :

- Is a **communication tool**: transmits one or more pieces of information
- Contributes to **scientific knowledge**
- **Allows for the verification of result reproducibility**: The reproducibility of results is an essential criteria in science to ensure the objectivity of the conclusion and, consequently, to guarantee scientific honesty (l'honnêteté).
- **Others**: Visibility and reputation of a researcher, promotion...etc

IV. The different types of articles published

- ❖ Original research paper (Article de recherche)
- ❖ *Review paper* (Article de revue ou article de synthèse, revue narrative, Revue bibliographique)
- ❖ Research note (Note de recherche, lettre de recherche)
- ❖ Protocol article (Article de protocole)
- ❖ Theoretical article (Article théorique)
- ❖ Systematic Review (Revue systématique)
- ❖ Meta-analysis (Méta analyse)

IV. The different types of articles published

Before starting the writing process, it is necessary to choose the type of article. There are several distinct types:

❖ **Original research paper** (Article de recherche)

Presents the original results of one or more empirical studies (it is a primary document). It is produced from research data. It follows the IMRAD model (Introduction, Methods, Results, and Discussion).

A research article presents the original results (a priori or a posteriori) of a research project.



Research article=
article original

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Research article

A comparative evaluation of antibacterial activities of imidazolium-, pyridinium-, and phosphonium-based ionic liquids containing octyl side chains



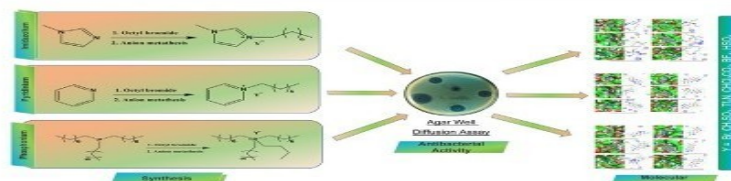
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GRAPHICAL ABSTRACT



ARTICLE INFO

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Pyridinium
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Octyl
Antibacterial activity

ABSTRACT

Antibacterial activity is an essential property of ionic liquids. In this work, a comprehensive study has been performed on the antibacterial activity of ionic liquids to be utilized for further research and applications. Eighteen ionic liquids viz. Octyl Imidazolium, octyl Pyridinium, quaternary phosphonium-based cations containing bromide, sodium methane sulphonates, bis(trifluoromethane sulfonyl) imide, dichloroacetate, tetrafluoroborate, hydrogen sulfate were prepared and characterized with the help of different spectroscopic techniques. All these samples of ionic liquids were tested for their antibacterial activity against the most commonly occurring bacteria in the environment, i.e., *Enterobacter aerogenes* (*E. aerogenes*), *Proteus vulgaris* (*P. vulgaris*), *Klebsiella pneumoniae* (*K. pneumoniae*), *Pseudomonas aeruginosa* (*P. aeruginosa*), *Escherichia coli* (*E. coli*), and *Streptococcus pyogenes* (*S. pyogenes*). Most of the ionic liquids show good antibacterial properties, and imidazolium-based ionic liquids were even more antibacterial as compared to positive control. It was observed that a unique combination of cation and anion is essential to achieve desired antibacterial properties. The mechanism of antibacterial activity was further investigated using density functional theory calculations. A good correlation was found between experimental and theoretical studies.

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ORIGINAL RESEARCH PAPER

**EFFECT OF DIFFERENT DRYING TEMPERATURES ON THE
COMPOSITION AND ANTIOXIDANT ACTIVITY OF GINGER POWDER**

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The influence of drying temperatures ranging from 40° to 100°C on the chemical composition, antioxidant properties and microstructure characteristics of the ginger powders was investigated. The ginger samples dried at 100°C showed a significantly higher amount of polyphenols (24.154 mg EAG/g) and flavonoids (10.564 mg EAG/g) contents. Moreover, the antioxidant activity increased from 73.47% at 40°C to 78.23% at 100°C. The reduction trend of 6-gingerol and β -carotene concentrations was obtained by rising the drying temperatures as indicated by high performance liquid chromatography (HPLC) analysis. In contrast, zingerone and 6-shogol contents significantly increased at high drying temperatures. A pronounced gelatinization and a more compacted structure was observed in the ginger powders dried at high temperatures (80 and 100°C) as indicated by scanning electron microscopy analysis. These findings offer a better comprehension of the influence of the oven drying process on the functional properties and structure characteristics of the ginger powder, hence allowing the optimization and development of applications in the food and pharmaceutical industries.

Keywords: dried ginger, antioxidant activity, flavonoids, 6-gingerol, 6-shogol, zingerone

Introduction

Belonging to the family Zingiberaceae, Ginger (*Zingiber officinale Roscoe*) is one of the most common plants globally used in food and beverages as a spice and flavouring agent. Ginger has been used for more than 2000 years in many cultures (Bartley and Jacobs, 2000). For instance, Asians, Egyptians, Greeks and Romans

Syrup from Commiphora africana (C. africana L.): Optimization of Sugars Extraction and their Quantification by High Performance Liquid Chromatography

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Abstract: Background: In Algeria, important quantities of secondary date variety (*Phoenix dactylifera* L.) are generated in each campaign; their chemical composition is similar to that of commercial dates. The present work aims to valorize this common date variety (Degla-Beida) which is often poorly exploited.

Methods: In this context, we tried to prepare syrup from the secondary date variety and evaluate the effect of conventional extraction (CE) or water bath extraction (WBE) and alternative extraction (microwaves assisted extraction (MAE) and ultrasound-assisted extraction (UAE)) on its total sugar content (TSC), using response surface methodology (RSM). Then, the analysis of individual sugars was performed by high performance liquid chromatography (HPLC).

Results: Maximum predicted TSC recoveries under the optimized conditions for MAE, UAE and CE were 233.248 ± 3.594 g/l, 202.889 ± 5.797 g/l and 233.535 ± 5.412 g/l, respectively, which were close to the experimental values: 233.796 ± 1.898 g/l; 202.037 ± 3.401 g/l and 234.380 ± 2.425 g/l. HPLC analysis revealed high similarity in the sugar composition of date juices obtained by MAE (60.11% sucrose, 16.64% glucose and 23.25% fructose) and CE (50.78% sucrose, 20.67% glucose and 28.55% fructose), although a large difference was detected for that obtained by UAE (0.00% sucrose, 46.94% glucose and 53.06% fructose).

Conclusion: Microwave-assisted extraction was the best method for the preparation of date syrup with an optimal recovery of total sugar content. However, ultrasound-assisted extraction was the best one for the preparation of date syrup with high content of reducing sugars.

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Keywords: Dates, extraction methods, HPLC analysis, RSM, sugars, syrup.

❖ *Review paper* (Article de revue ou article de synthèse (revue narrative, Revue bibliographique))

Provides an overview of a set of published studies with the aim of suggesting new hypotheses or further studies (it is a secondary document), or it presents a state of the art on a given problem or subject. The objective of a review article is to summarize the current state of scientific knowledge in a specific field. It does not rely on experimentation. It is longer than a research article and does not follow the IMRAD model.

Article de synthèse

Pharmacognosie

Les polyphénols et les polyphénols de thé¹

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Résumé : Dans cet article de synthèse, l'auteur résume les principales données que nous avons sur les polyphénols en général et sur les polyphénols du thé plus particulièrement.

Mots clés : Polyphénols naturels – Polyphénols du thé – Activités pharmacologiques – Intérêt diététique

Polyphenols and tea polyphenols

d'environ 8 000 composés, divisés en plusieurs catégories qui sont les acides phénoliques, les flavonoïdes, les tanins issus de la polymérisation des flavonoïdes, les lignanes qui, avec les isoflavones, sont nommées phyto-œstrogènes.

On recense 4 000 flavonoïdes dans le règne végétal. Les flavonoïdes sont eux-mêmes classés en fonction de leur degré d'oxydation en 6 grandes classes [20] (Tableau 1).

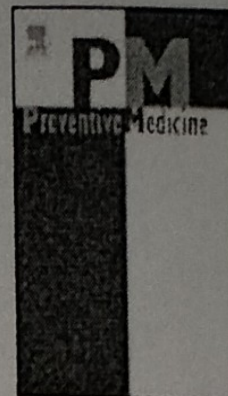


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Contents lists available at ScienceDirect

Preventive Medicine

Journal homepage: www.elsevier.com/locate/ypmed



Article
Review

Review

Health impact assessment of active transportation: A systematic review



CrossMark

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❖ **Research note** (Note de recherche , lettre de recherche)

Short report of original research findings. It is a specific case of a research article; it is a brief communication that does not exceed 2 to 3 pages (including illustrations and bibliography), which is a maximum of around 1000 words. The structure follows the IMRAD model but with a maximum of 2 to 3 illustrations.

The choice to write a Research Note can be justified by:

1. a lack of results to write a full article
2. work for which the method is not new but which contributes something new regarding a variety or a region

❖ **Theoretical article** (Article théorique)

Development of new theoretical explanations concerning a phenomenon or a set of phenomena

❖ **Systematic Review** (Revue systématique)

Answers a question by analyzing and synthesizing multiple data sources that all address the same question.

❖ **Meta-analysis** (Méta-analyse)

Statistical analysis, combines quantitative data. Example: Bioclimatology, Ecology, Health, and synthesizing multiple data sources that all address the same question.

IV. The different types of articles published

The types of articles consulted by readers vary according to their level and profile.

If the reader wishes to

Consult

Specialise in a particular area

Research articles and/or research notes

Table 2: Types of articles published in a journal

Primary literature

Original research articles

Surveys (Enquêtes)

Case report/case series

Conference proceedings and abstracts

Editorial

Correspondence/letters to the editor

Secondary literature

Narrative reviews

Systematic reviews

Meta-analysis

Book reviews

Guidelines

Commentary

V. The role of a scientific publication

Common reasons for reading journal articles

1. To update oneself with progress in a particular speciality /field of study;

1. Se mettre à jour avec les progrès dans une spécialité/un domaine d'étude particulier

2. To find out a solution for a specific problem- could be diagnostic (tests/methods) or therapeutic (medical/surgical)

Trouver une solution à un problème spécifique - cela peut être diagnostique (tests/méthodes) ou thérapeutique (médical/chirurgical)

3. To know about causation, clinical features, and course of a disorder/disease

Connaître les causes, les caractéristiques cliniques et l'évolution d'un trouble/d'une maladie

V. The role of a scientific publication

Common reasons for reading journal articles

4. To understand certain fundamental aspects like pathophysiology
4. Comprendre certains aspects fondamentaux comme la physiopathologie
5. To get an idea for carrying out a research work
5. Avoir une idée pour mener un travail de recherche
6. The article has been assigned to be read (for e.g., by an instructor to a postgraduate student)
6. L'article a été assigné à être lu (par exemple, par un instructeur à un étudiant de troisième cycle)
7. To find support for one's views
7. Trouver un soutien à ses opinions
8. To impress others (Impressionner les autres)

VI. Structure of a scientific article

The structure of a scientific document plays an important role in **the validation of research** by other researchers, including :

- ✓ **members of the editorial board** of the journal in which the paper is published
- ✓ **and its readers.**

A good structure **facilitates the flow of ideas** and **makes it easier to understand** the message as a whole.

V. Structure of a scientific article

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Available online at www.civiljournal.org

Civil Engineering Journal

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Research Article

Short-Term Health Impact Assessment of Urban PM₁₀ in Bejaia City (Algeria)

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We used Health Impact Assessment (HIA) to analyze the impact on a given population's health outcomes in terms of all-causes mortality and respiratory and cardiovascular hospitalizations attributable to short-term exposure to particulate matter less than 10 µm diameter (PM₁₀) in Bejaia city, for which health effects of air pollution have never been investigated. Two scenarios of PM₁₀ reduction were considered: first, a scenario where the PM₁₀ annual mean is decreased by 5 µg/m³, and then a scenario where this PM₁₀ mean is decreased to 20 µg/m³ (World Health Organization annual air quality guideline (WHO-AQG)). Annual mean level of PM₁₀ (10.7 µg/m³) was calculated from objective measurements assessed *in situ*. Each year, about 4 and 55 deaths could be postponed with the first and the second scenarios successfully. Furthermore, decreasing PM₁₀ annual mean by 5 µg/m³ would avoid 5 and 3 respiratory and cardiac hospitalizations, respectively, and not exceeding the PM₁₀ WHO-AQG (20 µg/m³) would result in a potential gain of 36 and 23 per 100,000 respiratory and cardiac hospitalizations, respectively. Lowering in current levels of PM₁₀ has a nonnegligible impact in terms of public health that it is expected to be higher in the case of long-term effects.

1. Introduction

Short-term variations in air pollution have been associated with mortality from various causes in cities all over the world [1–10]. These associations include all-cause mortality [11–15], respiratory mortality [16–20], and cardiac mortality [21–23]. Among air pollutants, suspended particulate matter (PM) is extensively recognized as the most important air pollutant in terms of human health effects considering that many epidemiological studies substantiate significant associations between concentration of PM in the 2 air and adverse health impacts [4, 5, 24–28].

Health Impact Assessment of Air Pollution (HIA-AP) is a method encouraged by WHO [29], whose aim is to provide the number of health events that could be prevented by reducing air pollutant levels in the target population.

Studies on health impact of air pollution carried out in Algeria are few and limited to Algiers where air pollution is monitored through one air quality (AQ) station. In other regions, like Bejaia city (~300,000 inhabitants) there are no AQ measuring stations. Yet, the constantly increasing number of vehicles, their age (average of 8.5 years), and the tendency to dieselization (52.9% in 2014) are reasons that make Bejaia vehicle fleet a major source of air pollution. In a precedent paper [30], we have presented a descriptive study of the impact of air pollution as assessed through vehicles counts on the Bejaia population. We have shown that at the population level exposure to vehicle air pollution is a cause of increased prevalence of respiratory diseases. No objective assessment of air pollutants levels was available at that time.

In this paper, we present for the first time results for HIA-AP in Bejaia city. Our HIA provided estimates of the number

Bioindication of Urban Air Polycyclic Aromatic Hydrocarbons Using *Petunia Hybrida*

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Abstract

Different ways can be used to determine the effects of hydrocarbons on plants: the bioindication with plants is one of these methods. It consists of using sensitive plants like *Petunia hybrida* to evaluate the urban levels of hydrocarbon pollution. The sensitivity shows physiological and morphological modifications. In this context, this research aims to characterize the level of exposure to air pollutants resulting from anthropogenic activities in urban areas of Bejaia (Algeria) by measuring the morphological impacts induced on *Petunia hybrida* using 11 parameters detailing the morphological development of this plant. During 7 weeks (March 25–May 11, 2017), ten monitoring stations were chosen in this city. The results showed that the most important morphological changes are directly associated with the stations closest to the main atmospheric emission zones. It is by moving away from these sources of exposure that the morphological changes observed in this bioindicating plant become less important. These results coincide with those found for particle matter concentrations including PM₁₀ and PM_{2.5} which indicate that Douarj and Asserir stations are the most polluted sites in Bejaia. Analyses carried out on research station located in rural area (more than 50 km from the studied city) revealed a greater general development compared to other stations.

Keywords: Bioindication; Urban Air Pollution; *Petunia Hybrida*; Active Approach; Morphological Changes

1. Introduction

Polycyclic aromatic hydrocarbons enter the environment through various routes and are usually found as a mixture containing two or more of these compounds [1–4]. However, most PAHs are generated by incomplete combustion and pyrolysis of organic substances during industrial production, transportation, waste incineration and so on [5]. PAHs are widely distributed in the atmosphere and they can be transported over long distances before depositing through atmospheric precipitation into soils, vegetation or waters [1, 6].

According to Nielsen [7], Allen [8] and Maliszewski [1], PAHs were distributed among aerosol size fractions based on molecular weight. So, those with molecular weights between 178 and 202 g/mol were approximately evenly

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Review

A review of land-use regression models to assess spatial variation of outdoor air pollution

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ABSTRACT

Studies on the health effects of long-term average exposure to outdoor air pollution have played an important role in recent health impact assessments. Exposure assessment for epidemiological studies of long-term exposure to ambient air pollution remains a difficult challenge because of substantial small-scale spatial variation. Current approaches for assessing intra-urban air pollution contrasts include the use of exposure indicator variables, interpolation methods, dispersion models and land-use regression (LUR) models. LUR models have been increasingly used in the past few years. This paper provides a critical review of the different components of LUR models.

We identified 25 land-use regression studies. Land-use regression combines monitoring of air pollution at typically 20–100 locations, spread over the study area and a development of stochastic models using predictor variables usually obtained through geographic information systems (GIS). Monitoring is usually temporally limited: one to four surveys of typically one or two weeks duration. Significant predictor variables include various traffic representations, population density, land use, physical geography (e.g. altitude) and climate.

Land-use regression methods have generally been applied successfully to model annual mean concentrations of NO₂, NO_x, PM_{2.5}, the soot content of PM_{2.5} and VOCs in different settings, including European and North-American cities. The performance of the method in urban areas is typically better or equivalent to geo-statistical methods, such as kriging, and dispersion models.

Further developments of the land-use regression method include more focus on developing models that can be transferred to other areas, inclusion of additional predictor variables such as wind direction or emission data and further exploitation of focus area methods. Models that include a spatial and a temporal component are of interest for (e.g. birth cohort) studies that need exposure variables on a finer temporal scale. There is a strong need for validation of LUR models with personal exposure monitoring.

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1. Introduction

A large number of epidemiological studies have shown that current day outdoor air pollution is associated with significant adverse effects on public health (Brunekreef and

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VI. Structure of a scientific article

According to **Aristote**, **every plan** consists of two parts:

The first is to define the problem, **the second** aims to solve it. **A universal plan** could be schematically represented as follows:

Define the problem from the diversity of phenomena (synthetic approach)

Solve the already defined problem by analyzing it in several parts (analysis)

Conclusion: from the analyses, an attempt (tentative) is made to find a final solution (final synthesis).

structure IMRAD

Introduction, Materials and Methods, Results, and Discussion (IMRAD for English speakers) makes the structure of the article intelligible to researchers worldwide, regardless of their language. However, it can vary depending on the type of work (thesis, article) and the discipline.

Structure OPERA

which stands for **Observation, Problem, Experimentation, Results, and Action**. This type of structure is primarily used for analytical articles, especially in applied sciences (technology, management, etc.).

Structure ILPIA

which is structured as follows: **Introduction, Literature, Problem, Implication, Future**. It is better suited for review articles and surveys.

VII. The keys to the scientific text

title

The authors

lead author

Co-authors

Journal or review title

Year of publication

Number of pages

journal volume

Database logo

keywords

Bibliography

D O I

Corresponding author

abstract

VII. The keys to the scientific text

Database logo

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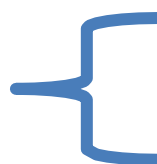
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VII. The keys to the scientific text

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Co-authors

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Abstract

ARTICLE INFO

Keywords

Keywords:
Paronychia argentea
Flavonoids
HPLC
MS
Antioxidant activity

ABSTRACT

Paronychia argentea Lam., belonging to the Caryophyllaceae family, is a perennial plant widely distributed in Algeria. Even though this plant is used in the Algerian popular medicine, its phytochemical characterization is incomplete. In this study, the flavonoid profile and the *in vitro* antioxidant activity of the ethanolic extract, decoction and infusion of *P. argentea* aerial parts are reported.

Flavonoids were analyzed by means of high-performance liquid chromatography coupled with diode array detection and electrospray ionization mass spectrometry. Eleven compounds were identified and six of them, including isorhamnetin-3-O-dihexoside, quercetin-3-O-glucoside, quercetinmethylether-O-hexoside, quercetin, jaceosidin and isorhamnetin, were described in this plant for the first time.

The ethanol extract showed the highest flavonoid content, followed by the decoction and the infusion (25.4 ± 0.8 mg/g of DM, 8.4 ± 0.5 mg/g of DM, 0.2 mg/g of DM, respectively), while the best antioxidant activity was shown by the decoction ($RC_{0.5} = 178$ μ g/mL for reducing power, 72.4% of inhibition of lipid peroxidation, $IC_{50} = 27.38$ μ g/mL for DPPH[•] radical scavenging activity and 59.7% of inhibition of NO[•] radical). These results showed that *P. argentea* decoction could be considered as a valuable source of flavonoids and antioxidants that might contribute to the valorization of the phytotherapeutic potential of this plant.

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Year of publication

Number of pages

Types of articles

*The Annals of the University Dunarea de Jos of Galati
Fascicle VI – Food Technology (2019), 43(2), 125-142*

volume

ORIGINAL RESEARCH PAPER

Title

EFFECT OF DIFFERENT DRYING TEMPERATURES ON THE
COMPOSITION AND ANTIOXIDANT ACTIVITY OF GINGER POWDER

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Research article

A comparative evaluation of antibacterial activities of imidazolium-, pyridinium-, and phosphonium-based ionic liquids containing octyl side chains



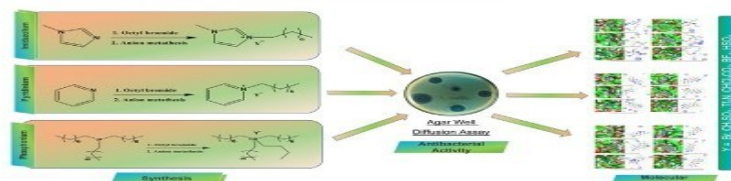
Rabia Hassan^a, Muhammad Asad Asghar^a, Mudassir Iqbal^{a,*}, Arshemah Qaisar^b, Uzma Habib^b, Bashir Ahmad^c

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GRAPHICAL ABSTRACT



ARTICLE INFO

Keywords:
Imidazolium
Pyridinium
Phosphonium

ABSTRACT

Antibacterial activity is an essential property of ionic liquids. In this work, a comprehensive study has been performed on the antibacterial activity of ionic liquids to be utilized for further research and applications. Eighteen ionic liquids viz. Octyl Imidazolium, octyl Pyridinium, quaternary phosphonium-based cations containing bromide, sodium methane sulphonates, bis(trifluoromethane sulfonyl) imide, dichloroacetate, tetrafluoroborate, hydrogen sulfate were prepared and characterized with the help of different spectroscopic techniques. All these samples of ionic liquids were tested for their antibacterial activity against the most commonly occurring bacteria in the environment, i.e., *Enterobacter aerogenes* (*E. aerogenes*), *Proteus vulgaris* (*P. vulgaris*), *Klebsiella pneumoniae* (*K. pneumoniae*), *Pseudomonas aeruginosa* (*P. aeruginosa*), *Escherichia coli* (*E. coli*), and *Streptococcus pyogenes* (*S. pyogenes*). Most of the ionic liquids show good antibacterial properties, and imidazolium-based ionic liquids were even more antibacterial as compared to positive control. It was observed that a unique combination of cation and anion is essential to achieve desired antibacterial properties. The mechanism of antibacterial activity was further investigated using density functional theory calculations. A good correlation was found between experimental and theoretical studies.

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Subject Terms: *SOCIAL justice
*STATE governments
*VICTIMS of crimes
*GOVERNMENT policy
*CONTENT analysis (Communication)
MEDICAL coding

Geographic Terms: UNITED States

Author-Supplied criminal justice policy
Keywords: policy dissemination
restorative justice
victim offender mediation

Abstract: Restorative justice is a relatively new approach to crime response, developing in the U.S. since the 1970s. Over the past three decades, these **practices** have been incorporated into legislation. Using content analysis of statutes in state criminal and juvenile codes, this study asks how **restorative** justice has been translated into law. The authors find that 32 states now have statutory support for the use of **restorative** justice, and that legislation ranges widely from general statements of support to structured use of **restorative practices** in at least some instances and for some offenders. Implications for practitioners, policy makers, and scholars are suggested. [ABSTRACT FROM PUBLISHER]

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Accession Number: 102013962

Images:



Chapter II : Critical reading of a scientific article; Course 2

**SAIT-DIB Sabrina MCA à
Université de Bejaia**

2023/2024

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I. Read an article

To facilitate your understanding, always keep in mind the following analysis method:

1. **Identify the structure of the text** from the reading of the **summary**.
2. **Identify the hypothesis**
3. **Define the purpose of the study**: This involves understanding why the text was written and what the author hopes to achieve by writing it.
4. **Determine the methodology used**: This involves identifying the methods and techniques that the author used to gather and analyze their data.
5. **Identify the main results**: This involves summarizing the key findings of the study.
6. **Draw the main conclusions**: This involves interpreting the results of the study and drawing conclusions about their significance.
7. **Identify the research gaps**: This involves identifying areas of the study that require further research.

1. **Identify the structure of the text** from the reading of the **summary**

A scientific article generally contains an **abstract** that summarizes the **main information of the article** (context, hypothesis, methodology, conclusions). Once the abstract is read, **or if no abstract is available**, quickly skim through the article to assess its relevance and quality, while familiarizing yourself with the overall ideas presented and the authors' thought process, through the titles of the different paragraphs.

2. Identify the hypothesis

Hypotheses constitute the underlying reason for the research and the way in which intuitions and theories will be tested. They help to define the purpose of the article.

Two types of hypotheses generally present themselves, which are often found in any type of article:

A. General or theoretical hypothesis

B. Operational hypothesis

The main difference between a theoretical hypothesis and an operational hypothesis lies in their level of abstraction and specificity. The theoretical hypothesis is more abstract and general, providing a broad conceptual framework, while the operational hypothesis is concrete and specific, detailing how variables will be measured and tested in the study.

3. Define the purpose of the study

Knowing both hypotheses, you are able to define the purpose of the research, or the goal that the author of the article seeks to achieve.

Defining the aim of the study, We find :

"In this paper, we present **Or** the aim **Or** the goal

In review article: **to review the**

4. Determine the methodology used

The methodology must be strict: everything must be explained concretely and nothing should be omitted.

The authors used the "....." method.

5. Identify the main results

Results: This section should present the results obtained from various experiments, research, and tests without analyzing them. These results respond only to the operational hypothesis.

In this section, the results are presented in the form of figures and tables, which must contain all the information necessary for their understanding.

Discussion: In the discussion section, you interpret your results. You indicate if the obtained results are consistent with existing theory and compare the obtained values with those mentioned in the literature. You analyze your results and explain any deviations from the theory. You interpret the value of the results and state if they are significant or not. It is essential to include all references in the text.

6. Draw the main conclusions

In the conclusion, you summarize the main results, provide a general assessment of the experiment conducted, and mention any improvements.

"In conclusion,

7. Identify the research gaps

The openings will remind you of the gaps in the study while also placing the results within a large context of research and future interest.

"We claim to do further analyses other areas.

II. Example "research article (research report)"

1. How to Read an Article

1. A **research article** is not read like a literary work.
2. It can be read **without following the order** of the sections.
Reading all the sections is not always necessary.
3. However, it is **advisable to read and understand the abstract** thoroughly before proceeding with the rest of the article.
4. Ultimately, the **reading strategy** for a scientific publication depends on the **reader's needs and goals**.

II. Example "research article (research report)"

1. How to Read an Article

After skimming the title and the abstract:

- To familiarize oneself with a **research field**, it is beneficial to **read** the **Introduction** and **Discussion** sections.
- To **delve deeper** (approfondir) into **the results** if they are interesting, we **examine** the **Discussion** and then the **Results** sections.
- To develop an **experimental work** (experiment, survey, sampling, etc.), it is the **Materials and Methods** section that **would be** interesting to **examine** carefully

II. Example "research article (research report)"

2. Possible orders of reading

1. Abstract - Discussion and Conclusion - Introduction - Results -
Materials and Methods.
2. Abstract - Introduction - Discussion and Conclusion - Results -
Materials and Methods.
3. Abstract - Materials and Methods.
4. Materials and Methods, Results, Discussion and Conclusion,
Introduction.

II. Example "research article (research report)"

3. Using an Article

- 1) **Abstract:** This is to quickly get an idea if the topic is relevant or not.
- 2) **Introduction:** This is a source of potential references on the subject.
- 3) **Results:** Rich in graphics, this section allows one to form an idea about the results and to interpret the figures without reference to the text.
- 4) **Discussion:** This section cites other similar studies or those with different results.
- 5) **Note that:** citations are used to support the authors' observations and ideas.
- 6) **Bibliography:** This section is a niche of references related to the topic.

III. Evaluation of a scientific article

Some evaluation criteria for a scientific article:

- Sets out the research problem at the beginning of the article
- Shows how the problem is addressed and developed by the theory
- Establishes links with other existing work in the literature in a relevant and informative manner, without seeking to be exhaustive (de manière pertinente et informative, sans chercher à être épuisé)
- Explains the experimental hypotheses, if any (this depends on the methodology chosen)
- Concludes within the limits of the results
- Demonstrates how the study helped to resolve the problematic question
- Outlines and discusses the theoretical and practical implications that can be drawn from the study

III. Evaluation of a scientific article

III.1. Critical reading

By reading a scientific article in a structured way, we can better determine whether it is relevant and useful for our work.

To read a scientific article properly, follow these steps:

- Read the introduction to the scientific article
 - ❖ Identify the problem addressed
 - ❖ Identify the research questions
 - ❖ Consider the authors' approach
- Read the method section
- Read the results section
- Determine whether the results answer the specific questions
- Read the conclusion and discussion
- Read the abstract
- Save the scientific article and note the source reference

III. Evaluation of a scientific article

III.1. Critical reading

N ^o	Questions asked		Yes	No	Comments
1	Is this article	An original work? A new subject?			
2	Is the title	Suitable for the content?			
3	Is the abstract	informative? Does it contain the main results?			
4	Is the introduction	Sufficient? Informative?			
5	Is the materials and methods section	clear? Appropriate? Ethical?			
6	Are the results	efficient? Satisfactory in terms of statistical analysis? Well presented?			
7	Are the tables	satisfactory? Clear? Necessary? Adequate in number?			
8	Are the figures	satisfactory? Clear / of good quality? Necessary? Adequate in number?			
9	Discussion	Does it include other studies?			

III. Evaluation of a scientific article

III.1. Critical reading

N°	Questions asked	
10	What is the type of this article? (An original ? A Review?)	
11	List the names of the authors, reviewers, and the editor."	
12	What is the affiliation of author (x)?"	
13	Identify the name of the main author (Lead author) of the article.	
14	Identify the volume and name of the journal of the article:	
15	Identify the Year of publication of the article	
16	Identify the Year of submission of the article	
17	Identify the DOI of the article	
18	Identify the number of pages of the article	
19	Identify the Corresponding author of the article	

III. Evaluation of a scientific article

III.2. Internal critical analysis

- How are the arguments presented?
- How are the results stated (énoncés)?
- What is the nature of the conclusions?
- Does the method comply with the research protocol?
- Why do we say that we have identified this or that method?

(Pourquoi dit-on que l'on a identifié telle ou telle méthode ?)

VI. Evaluation of a scientific article

III.2. Internal critical analysis

By reading the article, can the reader find out:

- How was this research conducted and in what context?
- What contracts were signed with the participants and/or institutions?
- What subjects and/or situations were encountered (and how many)?
- Was the sample selected?
- How were they selected? If not, why and how were the subjects selected?
- What data was collected?
- What measures were taken to make the research valid and faithful (or credible)?
- If categorisations were used, how were they defined?
- Before or after data collection, why?
- What are the ethical and political implications?

VI. Evaluation of a scientific article

III.3 External critical analysis

5.3. External critical analysis

Saying and arguing :

- What relevance does this methodological approach have among others? (Quelle est la pertinence de cette approche méthodologique parmi d'autres ?)Would other methods have been possible?