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ScienceDirect LibGuide: ScienceDirect AI

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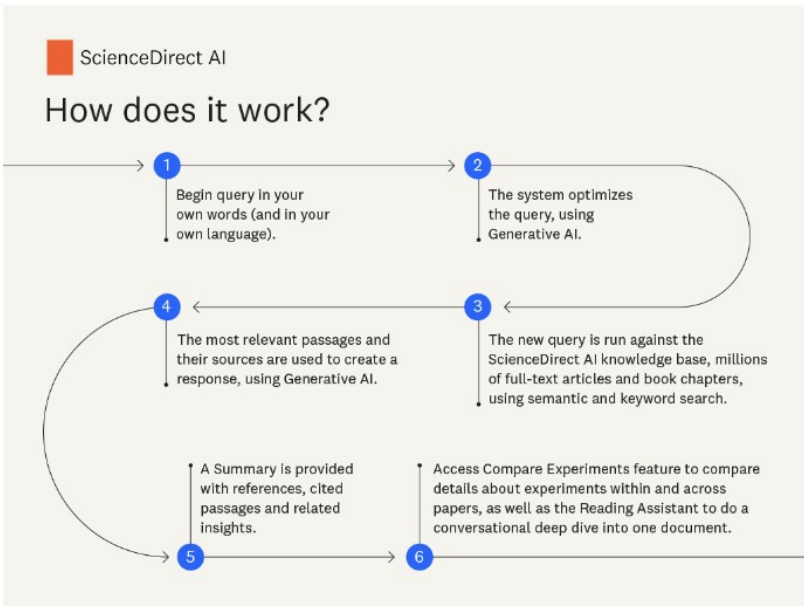
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What is ScienceDirect AI?

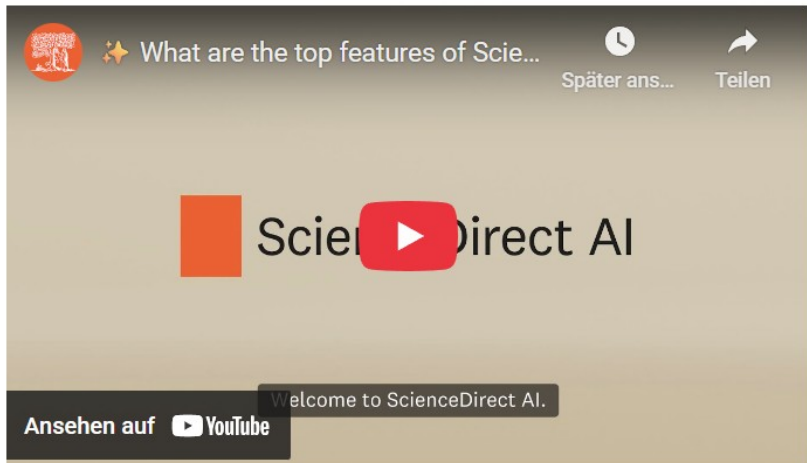
ScienceDirect AI (SD AI) is the companion that enables researchers to explore, compare and uncover insights from deep within the full-text of quality peer-reviewed literature, with one click.

Built on the most trusted peer-reviewed journal articles and book chapters, ScienceDirect AI surfaces critical evidence and ties it back directly to its original source, enabling traceability and reproducibility – a must for trustworthy research – so you can go from question to evidence in seconds, not days.

How does it work?



What are the top features?



Responsible AI principles

ScienceDirect AI was developed employing Elsevier's responsible AI principles:

- We consider the real-world impact of our solutions on people.

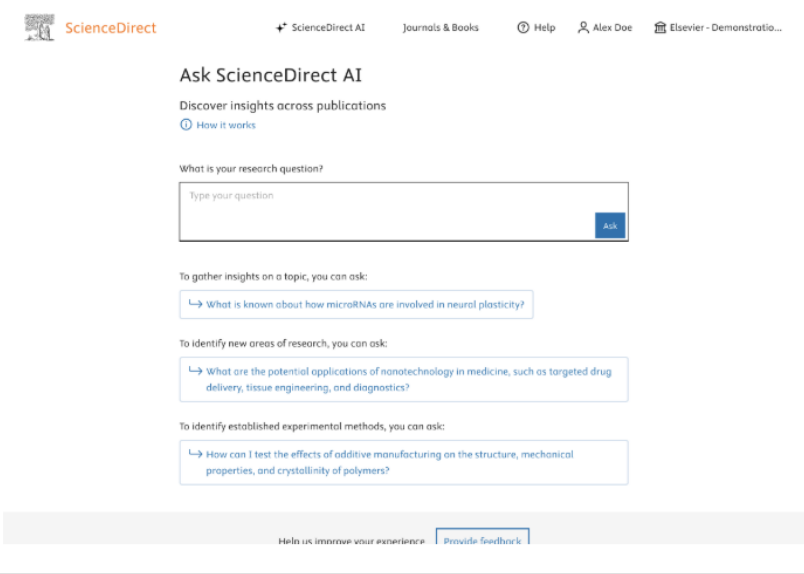
Getting started with Ask ScienceDirect AI

Ask ScienceDirect AI provides insights from across the underlying corpus of full-text, peer-reviewed scientific articles and book chapters.

Start your journey at scencedirect.com/ai

1. Enter your query by describing what you are looking for in your own words and the system will optimize your query to return the most relevant results.
2. Click on Ask

If you aren't sure where to start, view the pre-selected questions to explore the features on **ScienceDirect AI** or get inspired.



- We take action to prevent the creation or reinforcement of unfair bias.
- We can explain how our solutions work.
- We create accountability through human oversight.
- We respect privacy and champion robust data governance

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Reading Assistant

The **Reading Assistant** is a versatile tool designed for responding to questions, analysis, or summarization of individual articles and book chapters.

It is available on all full-text articles and book chapters on **ScienceDirect** that the user has access to, including entitled subscription content, open access, open archive and promo access articles.

Use the reading tool to:

- Receive a summary of the individual article
- Ask questions in your own words or use the suggested questions (available on a selection of articles) as a guide.

Responses from the reading assistant include **source references**. When the user clicks on the numbered references, ScienceDirect AI will highlight the information snippets that were used to respond to the question in the text.

Compare experiments

Use the **Compare experiments** function to view a table of all studies related to your query. The table compares each study's goals, materials, methods, results and conclusions.

If multiple experiments exist within the article, they will each be populated into the table respectively.



Search tools to improve your results

The query optimization tool was developed to support specific and complex queries. This tool employs a variety of techniques to generate the best possible response.


- **Agentic Approach:** The query optimizer tool on ScienceDirect AI helps by fixing any typos, expanding abbreviations, translating and rephrasing where necessary, and more.
- **Hybrid Search:** The tool then decides whether to use a natural language version of the query, a keyword version, or both, to retrieve the most relevant content to generate a summary from.
- You can see the process for the query optimization tool in the **summary steps** of your generated response.

Ask ScienceDirect AI

Discover insights across publications [How it works](#)

methods for encapsulation of flavonoids to increase stability

Ask

 [Hide summary steps](#)

Not happy with the summary? [Regenerate without optimization](#)

✓ Analyzing and optimizing your question

✓ Searching most relevant research for:
"What are the methods for encapsulating flavonoids to enhance their stability?"

✓ Searching keywords:
"Encapsulation methods for flavonoids"

✓ Finalizing summary

AI-generated content may vary in quality. Verify important information. [Learn more](#)

Summary

Methods for Encapsulation of Flavonoids to Increase Stability

If you want to compare experiments within the search results on **ScienceDirect**, select the papers you want to use before selecting **Compare experiments**.

Once the results are populated, you can export your results into a CSV file.

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Compare experiments

Info

AI-summarized research experiments or studies for:
"methods for encapsulation of flavonoids to increase stability"

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Export table to CSV

ARTICLE	EXPERIMENT / STUDY	GOAL	MATERIALS	METHODS
<div>Article</div> <div>Towards innovative food processing of flavonoid compounds: Insights into stability and bioactivity »</div> <div>Yu Fu, Wanning Liu, Olugbenga P. Saladoye</div> <div>ISWT - Volume 150 • 2021</div> <div>Export article as CSV</div>	<div>Review of existing literature</div>	<div>To discuss the impacts of structure on the stability of flavonoids</div>	<div>Flavonoids, hydroxyl groups, glycosyl groups, methyl groups, acyl groups, lecithin, Tween-20, metal ions, proteins, dietary fiber, carbohydrates</div>	<div>Reviewed the existing literature on the impacts of different structural features of flavonoids on their stability, including the effects of hydroxyl groups, glycosyl groups, methyl groups, acyl groups, and the influence of external factors like colloidal structures, metal ions, proteins, dietary fiber, and carbohydrates.</div>
	<div>Review of existing literature</div>	<div>To summarize the impacts of different thermal processing methods on the stability and bioactivity of flavonoids</div>	<div>Flavonoids, microwave, radio frequency, ohmic heating</div>	<div>Reviewed the existing literature on the effects of different thermal processing methods like microwave heating, radio frequency heating, and ohmic heating on the retention of flavonoid contents and antioxidant activities in various food sources.</div>

My Library

The [My Library page](#) on **ScienceDirect** is your personal reference space, designed to streamline your reference management. Save and view the documents you discovered on ScienceDirect AI, in one convenient place.

This is a mirror of your **Mendeley** library, which you can access with the same login you use for **ScienceDirect**. Anything you save in **Mendeley** will appear in **My Library** and vice versa.

Users can always choose to regenerate the response without optimization.

Understanding your results

ScienceDirect AI uses millions of full-text articles and book chapters to deliver your results.

The **Summary** will provide a response to your question citing specific sources. Every assertion references one or more specific passages and their respective source-documents.

Click on the citations to view **source snippets**, taken directly from the full text of the original document. With one click, you are then redirected to the source content of the snippet.

ScienceDirect

ScienceDirect AI Journals

Ask ScienceDirect AI

Discover insights across publications

methods for encapsulation of flavonoids to increase stability

Show summary steps

Not happy with the summary?

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Summary

Methods for Encapsulation of Flavonoids

Encapsulation Techniques:

- Nanotechnology:** Utilizes nanoparticles, microcapsules, and nanofibers to encapsulate flavonoids, enhancing their stability and bioavailability.
- Microencapsulation:** Involves physical methods like spray drying, fluid precipitation, and solvent evaporation; physicochemical methods like liposomes, and ionic gelation; and chemical methods like molecular inclusion complexation (Morsy et al., 2025).
- Nano-capsules:** These can be made from sugars, polymeric materials, and synthetic polymers, protecting flavonoids from oxidation and degradation, extending shelf life and allowing controlled release (Vazhappilly et al., 2023).

Wall Materials:

Reference preview

Nanoparticle-based flavonoid therapeutics: Pioneering biomedical applications in antioxidants, cancer treatment, cardiovascular health, neuroprotection, and cosmeceuticals

Hadeer M.MorsyMohamed Y.ZakyHour Y.S.YassinAshraf Y.Z.Khalifa

International Journal of Pharmaceutics • 2025

View article

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Answer found in section: "Nanoparticle-Flavonoid formulations"

Encapsulation may minimize flavonoid degradation during processing or storage, and follow physiological breakdown due to gastrointestinal digestion via the oral route (Premathilaka et al., 2022). Encapsulation is the technique of enclosing active chemicals (solid, liquid, or gas) in a wall material to create capsules ranging in size from micrometers to millimeters (Sundar and Parikh, 2023). The encapsulating agents and encapsulation method must be carefully chosen to create capsules with the necessary qualities. Encapsulating materials must be "generally recognized as safe" GRAS, cheap, and free of reactivity with the core substance (Hedayati et al., 2023). Furthermore, the coating agent's designation should consider functionality, capsule level, target release, and stability (Saadi et al., 2023). Encapsulation materials are mainly composed of carbohydrates, proteins, and lipids.

Expand the "References from summary" section to view a generated description of each reference

Navigation

Use the navigation widget to jump to other features on ScienceDirect AI

- A. Ask ScienceDirect AI
- B. My Library
- C. Information, Help, and Frequently Asked Questions
- D. Minimize navigation widget



More information

For more information, [visit the support center](#).

[View the FAQs](#)

View the quick reference guide

[Empowering Research Through Responsible AI on ScienceDirect](#) webinar: Learn about Generative AI (GenAI) developments on ScienceDirect and meet the team enabling researchers to explore, compare, and uncover evidence from deep within peer-reviewed literature.

material used. Understand how specific insights in the document relate to what you need to know. Add these references to your library to read later or copy the citation information.

Rate the quality of the AI-generated snippets using the star-rating – we are working to improve them every day!

References from summary (8)	
Oral delivery of hydrophobic flavonoids and their incorporation into functional foods: Opportunities and challenges Ruwanthi Premathilaka, Ali Rashidinejad, ... Jaspreet Singh Food Hydrocolloids • 2022 + Add to My Library Copy	Recent encapsulation techniques for hydrophobic flavonoids utilize wall materials like lipids, polysaccharides, and proteins. The document discusses various aspects of encapsulation systems that improve bioavailability and stability. How relevant is this answer? ☆☆☆
Towards innovative food processing of flavonoid compounds: Insights into stability and bioactivity Yu Fu, Wanning Liu, Olugbenga P. Soladaye LWT • 2021 + Add to My Library Copy	Hydroxyl group modification and physical encapsulation using liposomes can enhance flavonoid stability. The presence of certain food components may negatively impact bioavailability, while others can improve it. How relevant is this answer? ☆☆☆
Preparation and characterization of zein–lecithin–total flavonoids from <i>Smilax glabra</i> complex nanoparticles and the study of their antioxidant activity on HepG2 cells Jing Li, Yingxiu Zhang, ... Zhigang Yan Food Chemistry: X • 2023 + Add to My Library Copy	Chemical modification of flavonoids can improve stability, but safety concerns exist. Nanomaterials like nanoparticles and microcapsules are often used for effective flavonoid delivery. How relevant is this answer? ☆☆☆

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In three courses, you will learn:

- Key GenAI tools and underlying technologies
- Core benefits and limitations for librarians, students and faculty
- Best practices for using GenAI tools
- Top considerations for choosing GenAI tools



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