

INPLASY PROTOCOL

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None declared.

Phytochemicals and Biological activities of Walnut septum: a Systematic Review

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Review question / Objective: Chemical composition and biological activities of walnut septum (*Juglans regia* L.)

Eligibility criteria: Our systematic review included (1) studies performed on walnut septum plant material or walnut septum with the following objectives: (2) identification and/or quantification of phytochemical compounds; and (3) examination of the biological activity of identified compounds via (4) in vivo and (5) in vitro testing. We excluded: (1) abstracts, narrative reviews, comments, opinions, methodological papers, editorials, letters, observational studies, conference abstracts, or any other publications lacking primary data and/or explicit method explanations; (2) publications with full text not available; (3) duplicate studies or databases; and (4) publications in languages that were not known.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 February 2023 and was last updated on 16 February 2023 (registration number INPLASY202320075).

INTRODUCTION

Review question / Objective: Chemical composition and biological activities of walnut septum (*Juglans regia* L.)

Condition being studied: No specific condition was evaluated.

METHODS

Search strategy: synonyms, singular and plural forms, thesaurus words (Medical Subject Headings for PubMed: ("juglans"[MeSH Terms] OR "juglans"[All Fields] OR "walnut"[All Fields] OR "walnuts"[All Fields] OR "juglans regia"[All

Fields] OR "juglans nigra"[All Fields]) AND ("septum"[All Fields] OR "septa"[All Fields] OR "diaphragma juglandis"[All Fields] OR "diaphragma juglandis fructus"[All Fields] OR "internal septum"[All Fields]), and Emtree for EMBASE: ('juglans'/exp OR 'juglans' OR 'walnut' OR 'walnuts' OR 'juglans regia' OR 'juglans nigra' OR 'english walnut' OR 'persian walnut') AND ('walnut sep-tum' OR ('walnut' AND 'septum') OR 'diaphragma juglandis' OR ('diaphragma' AND 'juglandis') OR 'walnut internal septum' OR ('diaphragma' AND 'internal' AND 'sep-tum')).

Participant or population: Eligibility criteria of this review include phytochemical analysis studies and in vitro, in vivo studies for biological activity. No clinical studies.

Intervention: Not applicable.

Comparator: Not applicable.

Study designs to be included: Peer-reviewed articles of original research with the goal of examining the phytochemicals and biological activities of the walnut septum.

Eligibility criteria: Our systematic review included (1) studies performed on walnut septum plant material or walnut septum with the following objectives: (2) identification and/or quantification of phytochemical compounds; and (3) examination of the biological activity of identified compounds via (4) in vivo and (5) in vitro testing. We excluded: (1) abstracts, narrative reviews, comments, opinions, methodological papers, editorials, letters, observational studies, conference abstracts, or any other publications lacking primary data and/or explicit method explanations; (2) publications with full text not available; (3) duplicate studies or databases; and (4) publications in languages that were not known.

Information sources: PubMed and EMBASE databases.

Main outcome(s): The research has revealed that walnut septal extracts

contain a substantial amount of phytochemical components, and that these bioactive chemicals are responsible for a variety of therapeutic benefits, including antioxidant, anti-inflammatory, antibacterial, anti-diabetic, and antitumor actions. In addition, these compounds may possess anti-aging properties and play a role in healthy aging, a crucial aspect of lifetime.

Quality assessment / Risk of bias analysis: No quality assessment/risk of bias analysis was applied.

Strategy of data synthesis: Selection Process: three researchers independently reviewed the titles and abstracts of relevant journal publications. Then, the full texts of the documents that appeared to meet the selection criteria were collected for additional screening. Each full text was independently evaluated by the same researcher. In the event of discord, the research were discussed until a consensus was achieved. In cases where there were numerous publications from the same trial, only the most relevant or useful article was selected. Data regarding the outcomes were extracted in a spreadsheet Microsoft (Mi-crosoft Office 365, MS, Redmond, WA, USA) Excel file contained the following data: materials/type of extraction, phytochemical composition studies, in vitro studies/ bio-logical systems, and in vivo studies. Furthermore, data regarding study characteristics were extracted in a spreadsheet file: country, study design, study purpose and study outcomes. Other investigators than those who extracted the initial full-text articles re-checked the extracted data.

A total of 56 articles were considered from the systematic search and review of relevant reference lists. After applying exclusion criteria, 28 articles were included in the systematic review. The current systematic review was performed following the PRISMA criteria guidelines.

Subgroup analysis: No subgroup analyses were included in the review.

Sensitivity analysis: No sensitivity analyses were included in the review.

Language restriction: The review includes only studies published in English.

Country(ies) involved: Romania.

Keywords: walnut septum; by-products; diaphragma juglandis fructus; antioxidants; quantification; anti-aging; bioactive compounds biological activity; in vitro; in vivo; toxicity

Contributions of each author:

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