INPLASY PROTOCOL

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None declared.

Application of the Extracts of Uncaria Tomentosa in Endodontics and Oral Medicine: Scoping Review

Dioguardi, M[1].

Review question / Objective: **The aim of this Scoping-review is to summarize all the scientific evidence on the possible applications of Uncaria Tomentosa extracts in endodontics and more generally in oral medicine in order to understand if the active ingredients extracted from Uncaria Tomentosa can bring a real advantage in endodontics in the reduction of endodontic failures and in the onset of recurrent endodontic lesions**
Eligibility criteria: **All studies that treated the Uncaria tomentosa in association with endodontic pathologies and more generally with oral pathologies were considered potentially eligible, no restrictions were applied in relation to the year of publication and according to the language provided that an abstract in English is available in Spanish or Portuguese language (the choice of Spanish and Portuguese in association with English derives from the fact that since Uncaria tomentosa is a traditional medical plant of the Amazon region, excluding articles in this language would have potentially led to disregard for publication bias and to do not retrieve reports in gray literature sources), literature reviews were excluded and were only used as bibliografic research sources.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 July 2022 and was last updated on 06 July 2022 (registration number INPLASY202270024).

INTRODUCTION

Review question / Objective: **The aim of this Scoping-review is to summarize all the scientific evidence on the possible applications of Uncaria Tomentosa extracts in endodontics and more generally in oral medicine in order to understand if the active ingredients extracted from Uncaria Tomentosa can bring a real advantage in endodontics in the reduction of endodontic**

failures and in the onset of recurrent endodontic lesions.

Background: The main purpose of endodontic treatment is to eliminate the bacteria that have been responsible for the contamination and infection of the internal surfaces in order to resolve any pulp or periapical pathology. In addition, the treatment must aim at achieving an apical and coronal seal with a three-dimensional closure of the endocanalary gaps to prevent bacteria from penetrating into the endodontic space and colonizing the internal spaces not filled with root canal filling materials[1]. A fundamental role in obtaining a suitable seal and antimicrobial power is played by root canal sealants or, more generally, endodontic cements which have an antibacterial action, making the canal an unsuitable environment for bacterial proliferation. In fact, some bacteria such as Enterococcus Faecalis can escape the action of root canal irrigants by aggregating into biofilm and penetrating deeply into the dentinal tubules[2]. Sealing endodontic canals with materials that do not favor bacterial proliferation and that have a bactericidal or proliferation inhibiting power can be a winning strategy. Chlorhexidine (CHX) is one of the substances that have the ability to inhibit bacterial proliferation[3]. It is also used as a canal irrigant and is adsorbed on the dentinal surface, being slowly released later; in a similar way, other substances present in irrigants or endodontic cements can carry out this prolonged action over time, including many products of natural origin. Uncaria Tomentosa is a plant belonging to the Rubiaceae family and also commonly known as cat's claw due to the shape and position of the spines, it is a tradition-al Peruvian medicinal plant of Amazonian origin, has antioxidant, antimicrobial, antineoplastic, immunomodulating properties, antiretrovirals, an-ti-inflammatory, its extracts contain oxindole , triterpenes, phenolic compounds , alkaloids , glycosides vegetable steroids, flavonoids and tannin, while the compound that has the greatest antibacterial properties found in the bark and is the Isopteropodine-HCl, a pentacyclic oxindole alkaloid whose action is directed towards gram positive bacteria . In the medical field it has potential in the treatment of hyperglycemia, hyper-lipidemia, metabolic syndrome and pregnancy hypertension as a Dermo-cosmetic spray in patients with mild-to-moderate cutaneous pain and has also been tested as a binding factor the ace2 receptor at the site where the Sars-covid 2 spike protein binds and has demonstrated some anticancer properties targeting breast cancer, melanoma cell lines.

Rationale: Applications of Uncaria tomentosa in the dental field have been described both in the prevention and treatment of stomatitis and as antibacterial and anti-inflammatory ; it has also been investigated as an additive in irrigants and specifically as gels and in endodontic cements to exploit the ability of the active ingredients to be adsorbed by the tooth surface with a mechanism similar to CHX and to be released , successively slowly exerting its inhibiting action on bacterial proliferation.

METHODS

Search strategy: The search was carried out on 5 databases (PubMed, Scopus, Science direct, EB-SCO and Web of Science) and a register (Chocrane library), in addition, a gray literature search was performed on Google scholar and Opengray (DANS EASY Archive), potentially eligible articles were also searched among references from literature reviews on Uncaria tomentosa. The research was conducted between June 15, 2022 and July 1, 2022 with a last update of the records identified on July 03, 2022. The authors responsible for researching the studies used the following key words in the databases: Uncaria tomentosa OR cat's claw. The key words used on PubMed are shown below; Search: uncaria tomentosa OR cat's claw Sort by: Most Recent "cat s claw"[MeSH Terms] OR ("cat s"[All Fields] AND "claw"[All Fields]) OR "cat s claw"[All Fields] OR ("uncaria"[All Fields] AND "tomentosa"[All Fields]) OR "uncaria tomentosa"[All Fields] OR ("cat s

claw"[MeSH Terms] OR ("cat s"[All Fields] AND "claw"[All Fields]) OR "cat s claw"[All Fields]).Translations uncaria tomentosa: "cat's claw"[MeSH Terms] OR ("cat's"[All Fields] AND "claw"[All Fields]) OR "cat's claw"[All Fields] OR ("uncaria"[All Fields] AND "tomentosa"[All Fields]) OR "uncaria tomentosa"[All Fields] cat's claw: "cat's claw"[MeSH Terms] OR ("cat's"[All Fields] AND "claw"[All Fields]) OR "cat's claw"[All Fields].

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Source of evidence screening and selection: The search for potentially eligible studies was conducted by 2 reviewers (M.D. and D.S.) with a 3 reviewer (A.B.)with the task of choosing whether to include the studies, in situations of conflict. The 2 reviewers after having decided jointly: the eligibility criteria, the databases to be used and the keywords; they independently carried out the research work, re-porting the number of records obtained for each key words and each database used; Duplicate records from different databases were removed using EndNote 9 software, study overlays that could not be uploaded to EndNote were manually removed after the screening phase. Always independently they proceeded to the screening and inclusion of the studies from the records obtained and only subsequently was there a comparison of the included studies between the 2 reviewers. The 2 reviewers after having decided jointly: the eligibility criteria, the databases to be used and the keywords; they independently carried out the research work, re-porting the number of records obtained for each key words and each database used; Duplicate records from different databases were removed using EndNote 9 software, study overlays that could not be uploaded to EndNote were manually removed after the screening phase. Always independently they proceeded to the screening and inclusion of the studies from the records obtained and only subsequently was there a comparison of the included studies between the 2 reviewers.

Data management: The type of data to be extracted was decided in advance by the authors; the data to be extracted will concern the lead author, the date, the country where the type of study was performed, the type of bacteria used, the compounds or materials tested and the main results. The data extracted from the studies are reported on word tables independently by the 2 reviewers and subsequently compared. The data obtained will then be represented through tables and inserted in the results section of this manuscript.

Language restriction: No.

Countries involved: Italy.

Keywords: Uncaria Tomentosa; Endodontics; Oral Medicine; Stomatitis; Cat's claw; Enterococcus Faecalis.

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