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ORIGINAL

Evaluation of the anti-inflammatory effect of Piper auritum Kunth in the treatment of traumatic and infectious facial edema

Evaluación del efecto antiinflamatorio del Piper auritum Kunth en el tratamiento del edema facial traumático e infeccioso

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ABSTRACT

Introduction: Piper auritum Kunth. (aniseed kaisimon) is one of the most traditionally used plants in Cuba for its anti-inflammatory traditionally used in Cuba for its anti-inflammatory, analgesic and healing properties, analgesic and healing properties.
Objective: to determine the efficacy of topical application of aniseed leaves in patients with traumatic and infectious facial edema.
Method: a cross-sectional descriptive observational study was carried out from January to April 2024. The universe consisted of 20 people of both sexes, hospitalized in the maxillofacial surgery service, who presented traumatic and infectious facial edema.
Results: of the total number of patients examined, the predominant age group was between 18 and 29 years old, male and white skin color.
Conclusions: there was a predominance of the age group between 18 and 29 years old, where the male sex prevailed. The white race presented the majority of patients treated with Piper auritum Kunth. The best results were found with applications of 15 minutes every 8 hours, achieving a decrease of edema in almost all its extension.

Keywords: Edema; Efficacy; Patients; Piper Auritum Kunth.

RESUMEN

Introducción: Piper auritum Kunth. (caisimón de anís) es una de las plantas más utilizadas tradicionalmente en Cuba por sus propiedades antiinflamatorias, analgésicas y cicatrizantes.
Objetivo: determinar la eficacia de la aplicación tópica de las hojas de caisimón de anís en pacientes con edema facial traumático y de causa infecciosa.
Método: se realizó un estudio observacional descriptivo de corte transversal, de enero a abril del año 2024. El universo estuvo conformado por 20 personas de ambos sexos, hospitalizadas en el servicio de cirugía maxilofacial, que presentaban edema facial traumático e infeccioso.
Resultados: del total de pacientes examinados predominó el grupo etario comprendido entre los 18 y 29 años, del sexo masculino y color de piel blanca.
Conclusiones: se encontró un predominio del grupo de edades comprendidas entre los 18 y 29 años, donde prevaleció el sexo masculino. La raza blanca presentó la mayoría de los pacientes a los cuales se trataron con

Piper auritum Kunth. Los mejores resultados se hallaron con aplicaciones de 15 minutos cada 8 horas, logrando una disminución del edema en casi toda su extensión.

Palabras clave: Edema; Eficacia; Pacientes; Piper Auritum Kunth.

INTRODUCTION

Natural and Traditional Medicine (NTM) offers a wide range of therapies, including acupuncture, acupressure, herbal medicine, laser therapy, homeopathy, apitherapy, flower therapy, ozone therapy, moxibustion, and others. Its use has increased worldwide in recent years, as it offers a wide variety of treatment options that are safe for the patient, cost-effective, low-toxicity, and highly potent.[1]

The MNT constitutes a guideline for economic and social policy in Cuba and serves as the guiding principle for student education throughout the five years of the program. All other disciplines and subjects are subordinated to it, and the necessary content is integrated with it in a multidisciplinary manner, an essential approach for comprehensive learning of the health-disease process.

For some years now, the use of medicinal plants for therapeutic purposes has been revived and developed, in what has been called "the green revolution in medicine."[2]

Piper auritum is an aromatic plant found in home gardens in southern Mexico and several Central and South American countries. Its stems, leaves, and inflorescences have been used in traditional medicine for digestive and skin diseases, as well as for tumors. It also has important culinary uses due to its contribution to the flavor and aroma of food. In Mexico, it is used to wrap tamales and as a seasoning for soups and fish dishes.[2]

P. auritum essential oil is safrole, which constitutes between 64 and 70 % of its composition. This metabolite is considered toxic to humans and its consumption was banned by the FDA in 1960. Also, the presence of α-thujene, α-pinene, ß-caryophyllene, germacrene-D, linalool, γ-terpinene has been reported with percentages between 4 and 1 %, in addition to other components that in total add up to about 50 metabolites that give it its characteristic smell and flavor, as well as its properties.[1]

It is well known that primitive man has been using plants since the beginning, specifically focusing on their therapeutic uses. What is unknown is how he was able to realize this, whether by chance or guided by an instinct like that of animals. The uses of a multitude of medicinal herbs have been transmitted between generations and ancient cultures (Mesopotamia, Egypt, etc.), being compiled in various subsequent writings that may have reached us, directly or indirectly.[2]

The Ebers Papyrus, discovered in Luxor in 1873, contains a thousand therapeutic prescriptions. The Egyptians used plants in infusions, powders, pastes, oils, suppositories, fumigations, washes, irrigations, lotions, liniments, and eye drops. The medicine could be administered by a physician, a magician, or a priest of the goddess Skhmet. They administered the medicines mixed with beer, wine, water, and honey. Oil was rarely used, and they preferred to grind oil-bearing grains such as sesame, castor, or flax and mix them with the powder of the chosen plant. Sometimes the flour of a grass such as wheat or barley was added.[3]

The most widely used medicinal plants in the world are: cannabis, chamomile, eucalyptus, garlic, aloe vera, lavender, and blueberry.[4] Ninety percent of the Mexican population has used or continues to use a medicinal plant. However, only five percent of the species have been scientifically studied, according to experts who participated in the Dialogue program of the National Institute of Forestry, Agriculture, and Livestock Research (INIFAP).[5]

The leaves of P. auritum are the plant organ used by 95 % of people.[1] The use of plants as a pillar of MNT during the last decades has been incorporated into the procedures of Cuban medicine, allowing dental professionals to broaden the therapeutic horizon in an integrative manner, associating it with conventional care practices.[1]

In Cuba, in the field of natural and traditional medicine, one of the most commonly used plants by the population is anise caisimón (Piper auritum Kunth.), for its popular effects: emollient, antirheumatic, diaphoretic, diuretic and stimulant Its analgesic, anti-inflammatory, and antimicrobial effects have been proven. The decoction is very tasty, but it should be taken infrequently and not given to children because it has zafrole which is neurotoxic and genotoxic.[6,7]

Because the correct use of this plant can be vital for the treatment of certain dental pathologies and that many times due to lack of knowledge of how to use such a natural product by some people it is incorrect, they constitute the main motivations to carry out this research, in which the objective is: to determine the effectiveness of the topical application of the leaves of anise caisimón in patients with traumatic facial edema and of infectious cause.

METHOD

A descriptive, cross-sectional observational study was conducted from January to April 2024 in patients aged 18 to 59 years of Maxillofacial Surgery service at the Arnaldo Milián Castro Hospital, Villa Clara, Cuba.

The universe consisted of 20 people of both sexes, and the sample consisted of 20 patients hospitalized in the maxillofacial surgery service who presented with traumatic and infectious facial edema and decided to participate in the study.

All adults over 60 years of age, patients with known sensitivity to anise, as well as those with sensitive skin and a history of allergies or sensitivity to other plants, and pregnant patients were excluded from the study.

Variables such as sex, age, skin color, frequency, and duration of application were operationalized, and the following were used to assess edema reduction: B: edema reduction was observed across almost the entire area; R: edema reduction was observed in the surrounding structures; and M: no changes were observed in edema quantification.

The patients were questioned and clinically examined. Informed consent was obtained for the examination of hospitalized patients, and the medical records of those with traumatic and infectious facial edema were reviewed.

The data were collected using a data collection form after the children's medical records were compiled, taking into account the interview and a thorough oral examination. To process this information, tables were created in Microsoft Excel 2013, the results of which are displayed in output tables, employing descriptive statistical techniques using absolute and relative frequencies.

Permission was obtained from the university's Ethics Committee to access medical records in the Archives and Statistics Department. Patients' personal and identifying data were not published, in accordance with the ethical principles of scientific research: Beneficence, Non-maleficence, Justice, and Autonomy. The research was approved by the University's Ethics Committee and Scientific Council.

RESULTS

A predominance of the age group between 18 and 29 years (n=6; 46,15 %) was observed, where the male sex prevailed (table 1).

Table 1. Distribution by age group and sex of patients with traumatic edema, Maxillofacial Surgery Service, Arnaldo Milián Castro Hospital, Villa Clara.

Age group (years)	Male		Female		Total	
	No.	%	No.	%	No.	%
18-29	6	46,15	3	42,85	9	45,00
30-45	5	38,46	1	14,28	6	30,00
46-59	2	15,38	3	42,85	5	25,00
Total	13	100	7	100	20	100

White-skinned male patients showed the highest participation rate (n=11; 84,61 %) (table 2).

Table 2. Distribution according to skin color and sex of patients with traumatic edema.

Skin color	Male		Female		Total	
	No.	%	No.	%	No.	%
White	11	84,61	4	57,14	15	75,00
Not Blanca	2	15,38	3	42,85	5	25,00
Total	13	100	7	100	20	100

During the first 24 hours of treatment, a decrease in edema in surrounding structures was observed (n=12; 92,30 %) after a 15-minute application every 8 hours (table 3).

At 48 hours after starting treatment, a decrease in edema in surrounding structures was observed (n=14; 51,85 %) after applying it for 15 minutes every 8 hours (table 4).

Table 3. Decrease in edema according to application frequency at 24 hours.

Frequency and time of application	Decrease in almost all its extension (B)		A decrease is observed in surrounding structures (R)		No changes are observed (M)	
	No.	%	No.	%	No.	%
15 min/12 h	0	0,00	1	7,69	19	70,37
15 min/8 h	0	0,00	12	92,30	8	29,62
Total	0	0	13	100	27	100

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Table 4. Decrease in edema according to application frequency at 48 hours.

Frequency and time of application	Decrease in almost all its extension (B)		A decrease is observed in surrounding structures (R)		No changes are observed (M)	
	No.	%	No.	%	No.	%
15 min/12 h	0	0,00	13	48,14	7	70,00
15 min/8 h	3	100	14	51,85	3	30,00
Total	3	100	27	100	10	100

At 72 hours after starting treatment, a decrease in edema was observed in almost its entire extension (n=18; 51,85 %) after applying it for 15 minutes every 8 hours (table 5).

Table 5. Decrease in edema according to application frequency at 72 hours.

Frequency and time of application	Decrease in almost all its extension (B)		A decrease is observed in surrounding structures (R)		No changes are observed (M)	
	No.	%	No.	%	No.	%
15 min/12 h	0	0,00	15	88,23	5	100
15 min/8 h	18	100	2	11,76	0	0,00
Total	18	100	17	100	5	100

CONCLUSIONS

This study found a predominance of patients between 18 and 29 years of age, with a predominance of males. Caucasians represented the majority of patients treated with Piper auritum Kunth. The best results were found with 15-minute applications every 8 hours, achieving a reduction in edema across almost the entire area.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

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