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A REVIEW ON IN VITRO EVALUATION OF THE ANTI ULCER ACTIVITY OF EXTRACTION OF *SALVIA HISPANICA L* EXTRACTED USING A SOXHLET APPARATUS

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Abstract:
Ulcers are mainly formed in our GIT. Ulcer is a type of gastro intestinal disorder seen in many people. An ulcer is a partial loss of epithelium mainly in the stomach, intestine and duodenum. Gastric ulcer and duodenal ulcer are the two main types of ulcer diseases & they together are called as "peptic ulcer". Many synthetic drugs are available in today's market but they are having number of adverse effects when compared to herbal medicines. There are many herbs and plant products that are effective towards these ulcer diseases. Some of them are *Cocos nucifera, Glycyrrhiza glabra, Tecomaria capensis and Salvia hispanica.* This article reviews some of the features of the plant *Salvia hispanica* towards ulcer healing activity. The aim of this review is to know more information about anti-ulcer property of *Salvia hispanica.*

Key words: Herbal medicine, Anti-ulcer activity, *Salvia* hispanica *L,* Treatment of peptic ulcer.

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Introduction:

Herbal Medicine:
Plants used in herbal medicine are referred to as medicinal plants. The study about them is called as "herbology". The term "herb" can refer to any part of the plant, including its fruits, seeds, stems, bark, flowers, leaves, stigmas and roots.1

Traditional medical practitioners, such as Vaids and Unani Hakims have been utilizing plants for treatment for over 4000 years. Various civilizations, including those in Rome, Egypt, Iran, Africa and America have incorporated herbal remedies into structured traditional medical systems such as Ayurveda, Unani and Traditional Chinese medicine.2

India, one of the world's oldest civilizations, is known for its abundant medicinal plant resources. The country's forests are home to numerous medicinal and aromatic plants. India's traditional medicine system, AYUSH, records approximately 8000 herbal treatments. According to WHO, around 80% of the global population relies on herbal medicine. WHO also reports that about 21000 plant species worldwide have medicinal properties.3

Medicinal plants are generally regarded as safe as they tend to have little to no adverse effects. Herbal remedies can be used by people of all ages and genders. Various plants, including Aloe, Tulsi, Neem, Turmeric and Ginger are known for their therapeutic properties and are widely used as traditional remedies across India. Tulsi is commonly used for making herbal medicines, black tea, religious offerings and daily household practices. 4

Many cultures use medicinal plants and herbs to repel insects like ants, flies, mice and fleas from homes and work places. Since 1999, the WHO has published three monographs on selected medicinal plants.

Herbs with Medicinal Properties & their importance:
Several herbs, such as black pepper, aloe, ginseng and safflower are known for their healing properties and are commonly used to treat wounds, sores and boils. A kitchen garden is an ideal space to cultivate medicinal herbs like basil,

fennel, chives and cilantro. Certain botanicals possess antibiotic properties. Turmeric, for instance, inhibits the growth of harmful bacteria, microorganisms and germs, making it a widely used home remedy for cuts and wounds. Traditional Indian medical practitioners use a variety of antipyretic herbs, including black pepper, sandal wood and safflower to reduce fever. 5

Reports suggests that Native Americans have long used plant-based medicines to counteract animal venom and snake bites. In addition to their medicinal benefits, certain herbs enhance the flavor and aroma of food. Ginger and cloves, frequently used in cough syrups which acts as natural expectorants helping to relieve congestion by thinning mucus in the lungs, trachea and bronchi. 6

Benefits of Herbal Medicine:

Scientific research indicates that herbal medicines contain complex chemical compounds associated with pharmacological effects that may offer health benefits (or) in some cases, toxic effects.

Studies suggests that at any given time, around 22% of the population experiences mental health disorders such as depression (or) anxiety. Among them, approximately 13% suffer from mild depression (or) anxiety, with 4% experiencing mild depression and 5% facing severe depression (Fiona et al., 2019).
The hypothalamic-pituitary-adrenal (HPA) axis, which includes the hypothalamus and adrenal glands plays a crucial role in regulating stress responses in both animals and humans. Chronic stress and overactivation of the HPA axis can impair the body's ability to adapt and manage stress, potentially leading to depression (Khan et al., 2017). 7

Anti-ulcer activity:

Painful sores that develop on the stomach lining are known as stomach ulcers (or) gastric ulcers, which fall under the category of peptic ulcer disease. The primary cause of peptic ulcers is an infection by Helicobacter pylori bacteria. Another common factor is the prolonged use of NSAID's such as ibuprofen and aspirin. Although stress and spicy foods do not directly cause ulcers, they can aggravate existing conditions. 6

Sleep plays a vital role in maintaining overall health, with inadequate (or) excessive sleep being linked to risks such as obesity, hypertension, diabetes and metabolic disorders. Sleep disturbances may also contribute to gastrointestinal problems. During sleep, natural protective mechanisms against peptic ulcers such as increased gastric blood flow, bicarbonate secretion and melatonin production are activated, while gastric acid secretion decreases. 7

Plant profile:

Salvia hispanica, commonly referred to as Chia, belonging to the family "Lamiaceae". It is grown for its edible seeds. It is an annual plant that reaches up to 1 meter in height. It has elongated leaves arranged oppositely, measuring 3-5 cm in width and 4-8 cm in length. The plant produces bisexual flowers, either white (or) purple. The seeds, which range from white to black, are oval shaped and about 1-2 mm long. 8

The plant is native to southern Mexico and Guatemala. It prefers sandy loam (or) loamy soil with a pH of 6.5- 8.5 and temperatures between 11°C and 36°C. Mexico remains the largest global producer of chia seeds. In Europe, Salvia hispanica is also cultivated in green houses. 9

The increasing global cultivation of chia highlights its significance as a versatile crop, adaptable to diverse climates and soil types. The growing demand for chia seeds, attributed to their health benefits and nutritional value, has led to their integration into both traditional agriculture and modern industrial farming. 10,11

Other Local Distributions:

Initially restricted to Mexico and Central America, chia cultivation has expanded into South America in regions with suitable soil and climate conditions.
In South American countries, chia is mainly cultivated in highland and lowland areas with well-drained soils.

In its native regions, chia is typically found in well-drained, mountainous terrains and tropical and subtropical climates, making it highly suited to such environments. 15

Treatment (Medications) of Peptic Ulcers:

The treatment depends on the cause of the ulcer, whether it is due to *H. Pylori* infection, NSAID use (or) a combination of both:

H. Pylori-Associated Ulcers: A combination of antibiotics along with a proton pump inhibitor is utilized for eradication therapy.

NSAID-Induced Ulcers: Discontinuation of NSAID's is recommended if feasible, followed by a 1-2 months course of a Proton pump inhibitor (or) a Histamine-2 receptor antagonist.

Ulcers with Combined Causes: A two-month course of proton pump inhibitors is prescribed along with eradication therapy.

Antibiotics: Amoxicillin, Clarithromycin, Metronidazole and Tetracycline.

Proton Pump Inhibitors: Omeprazole, Lansoprazole and Esomeprazole.

Histamine-2 Receptor Antagonists: Cimetidine, Famotidine and Ranitidine.

Antacids: Aluminum hydroxide and Calcium carbonate.

Cytoprotective agents: Misoprostol and Sucralfate.

A health care professional should be consulted to determine the most appropriate treatment based on the cause of the ulcer. 12,13,14

Conclusion:

From this study, we can conclude that the plant *Salvia hispanica* have anti-ulcer activity by various evidences collected from various books. The synthetic ulcer healing agents are also included in the study. Finally, the importance of herbal medicine is mainly discussed in the present study. *Salvia hispanica* is one of the most effective natural-herb against treating ulcers.

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