Histological Investigations for Cordia Myxa During the Treatment of Gastritis in Local Rabbits

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Abstract

Background: The goal of this study was to evaluate the effect of medical fruits, through H^+ proton pump inhibitors and observation to main of histological changes accompanying for treatment. **Methods**, Adult domestic healthy rabbits, all experimental animals were adapted in animal house. Animals were taken for this study distributed into three group, control (5 ml/kg b.w) gastritis (10% glacial acetic acid 1ml//kg b.w) and treatment group (5 ml/kg b.w) oral administration during 21 day for 3 time daily.

Results: the main histological observations for effects of (Juicer fruit Bumper) during induce inflammation by 10% acetic acid, after 4hr showing the inflammation region in internal surface in fundic region but most of internal surface it's normally. Histologically, the stomach of gastritis group was observed the erosion in epithelia surface and congestion of blood vessels, gastric pits disappear but most of changes which accrue in lamina propria generally. The rabbits of treated group was observed reductions in inflammatory area, with some extent of mucosal regeneration (re-epithelization) and the parietal cells appeared a granular cytoplasm and proliferation of connective tissue cells (granulation tissue).

Conclusions: these findings suggest that (Cordia myxa) considered perfect anti-inflammatory and H+ proton inhibited pump.

***Keywords**: Histological, Cordia myxa, anti-inflammation, rabbits*

Introduction

Centrally the Myxa Cordia L. known as "Bumber" is commonly used for its role in chest and urinary tract infections)1(. This is also used for its effects as anthelmintic, antigastritic, diuretic, antidiarrheal, antiworm or even as a tonic to the liver. In conventional medicine certain Cordia species compounds were used in osteoarticular diseases. Analgesic, antiarthritis , anti-inflammatory and of C. Dear myxa, C. C'est francisci, C. Martiniquez, C. Serratifolia, with C. The ulmifolia was found in rats (2). Petroleum ether extract, especially of C. francisci, C. myxa and C. serratifolia leaves has been reported to carry significant analgesic, anti-inflammatory and anti-arthritic activities (3).

Most of the population of the world depends on traditional medicine and conventional medicine's major role including the use of plant extract and its active ingredients. (4,5) Medicinal plants in Iran were commonly used in folk medicine for the treatment of diseases. Herbal medicines have drawn scientists and physicians ' attention nowadays due to the excessive use of medications and synthetic drugs contributing to health hazards (6). The high resistance to injury depends on a variety of physiological responses from the mucosal lining to potentially harmful luminous agents as well as on the ability to quickly restore mucosal damage when it occurs (7). However, when the injurious factors overwhelm these protective mechanisms, a gastric mucosal lesion may develop. Through a variety of local

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and systemic mechanisms, these drugs can not only exert gastric injury effects, but also delay the healing of ulcer lesions [8]. The use of proton pump inhibitors represents another important issue about the integrity of gastric mucosa. Such medications have been shown not only to avoid upper gastrointestinal injury caused by NSAID, but also to facilitate the recovery process once the damage has occurred, even in the presence of a continuous treatment of NSAID [9].

The aim of this study explained the effects of Cordia myxa fruit on experimentally induced gastritis in rabbits and showing main of histological changes in stomach.

Materials and methods:-

Eighteen healthy rabbits for both sex were chosen and divided in to three groups (control group G1, inflammatory group G2, treatment group G3). Weight of animals (850-1100) g, breed locally, were used in this study. Control group (5ml/kg b.w), Gastritis group were given 10% glacial acetic acid directly in stomach by small stomach tube, after 20 minute water administrated for acidity decrease (1ml/kg b.w) and treated group administrated by bumper fruit (5 ml/kg b.w) oral administration during 21 day for 3 time daily [10]. The tissue specimens were sectioned from the fundic region. The size of the specimens were taken about 1 cm and then kept in 10% formalin for 48 hours. The samples were proceeding with routine histological technique [11].

Results & Discussions

The present study showing the stomach of rabbits consist of three regions, cardiac, fundic and pyloric region, each area had characteristics different from other. Generally, the stomach consists of four basic layer; mucosa (epithelia, lamina propria and muscularis mucosa), submucosa contains loose connective tissue, elastic fibers and blood vessels, tunica muscularis consisting of smooth muscles fibers and tunica serosa. These results akin with [12] who describe that the histological structure of stomach in lab animals consist of four basic layers in all regions of stomach.

Control group

The current study showing, the epithelial of fundic region consists of simple columnar epithelia without goblet cells, gastric pits were oval shape and normal state occupied by gastric glands, thickness of gastric pits was (90) µm. the distribution of simple tubular gastric glands were regular, the parietal cells oval or pyramidal in shape fill with granules with rounded nucleus located in central of cells. These consequences agree with [13] who noticed that the fundic region of stomach in domestic animals lined by simple columnar epithelia and glandular region consist of parietal and chief cells spread as a cord like. (Fig,1,2)

Gastritis group

In current study, the characteristic histological examination of acetic acid induced gastric inflammation, showing damaged mucosal epithelium, distortion of glands. This study was observed the erosion in epithelia surface and congestion of blood vessels, gastric pits disappear but most of changes which accrue in lamina propria generally. This finding comparable with [3] who stated that the acetic acid causes the local inflammation during gastrointestinal tract.

also showing the present large numbers of parietal cells characteristic by polyhedral or oval in shape, have strong affinity had highly granules in cytoplasm, dark nucleus and aggregation in many group and form the circles, reach in epithelial surface with present of severe inflammatory infiltrate, proliferation of fibroblasts. These results showed congestion area located under tunica mucosa. The parietal cells that located in epithelial surface illustrated as circles and increase in number but chief cells less than its. These consequences similar with [14] who describe that the parietal cells become fill with granules during too much of acidity (Fig,3,4).

Treatment group

In this study, the Gastro -mucosal changes at four weeks revealed complete healing in treated with (Juicer fruit Bumper) this finding showed regeneration to epithelial surface and consist of gastric pits a normally and increase in length about (170) µm, reduce in congestion areas. The stomach in treated group lined by a simple columnar epithelium with a lightly stained cytoplasm. The general histological appearance of parietal cell which serialized arrangement, decrease in number if its compared with inflammatory group, have pink lightly cytoplasm, decrease in cytoplasm granules. The present study showing the submucosa become

dense and contains a large amount of collagen fiber which filled the space. In current study First registered, the Cordia myxa fruit act to inhibitors proton pump by reducing quantity of acid in stomach during in active of parietal cells), this result comfortable with [15] who stated the parietal cells after treated with Rabeprazole appearance under regenerate epithelia and have purple cytoplasm due to decrease secretion of hydrochloric acid (Fig, 5,6).

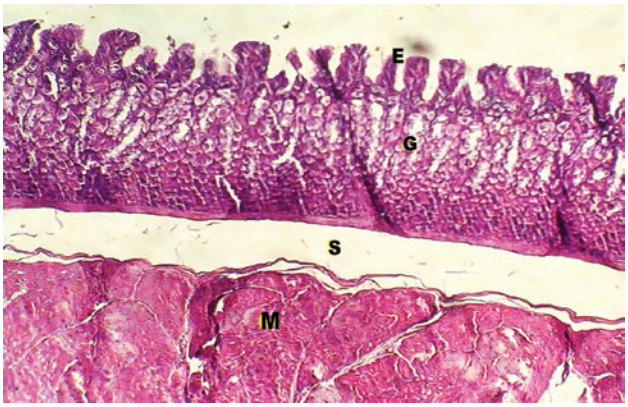

Figure: 1. Stomach of control group shows the normal E-Epithelia, G-Glandular region, S-Submucosa and M-Muscularis. H&E stain.40X.

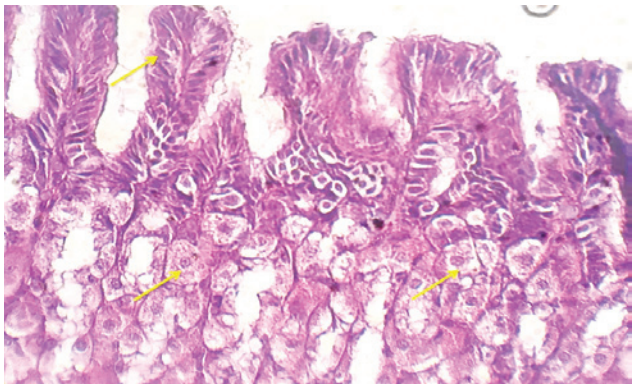

Figure: 2. Stomach of control group shows the simple columnar epithelia (black arrow) and normal state of parietal cells oval in shape (yellow arrows). H&E stain.400X.

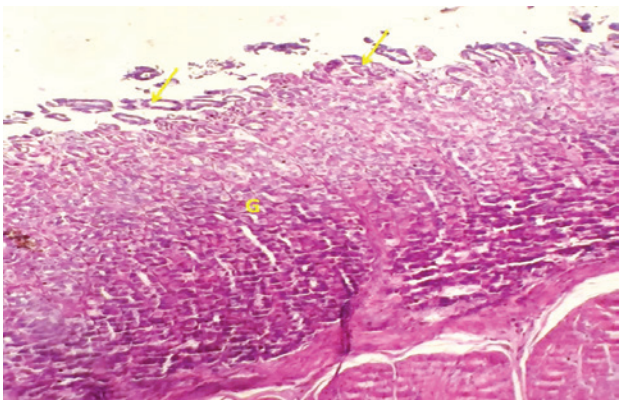

Figure: 3. Stomach of gastritis group shows the damage of epithelia (yellow arrows) and the distribution of glandular cells randomly, G- Glandular region. H&E stain. 40X

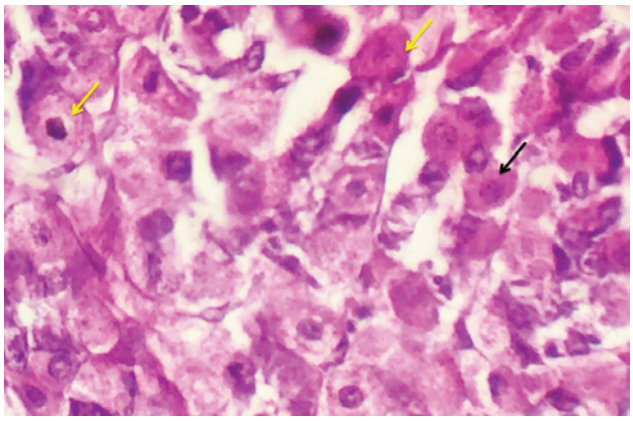

Figure: 4. Stomach of gastritis group finding the dark and highly granular of parietal cells (yellow arrows) and pyramidal chief cell (black arrow). H&E stain. 400

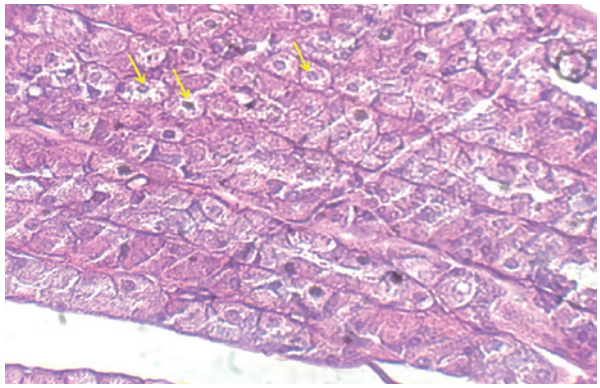

Figure: 5. Stomach of treatment group finding the regenerated of high epithelial layer (yellow arrows) and glandular cells spread as a cord like (black arrows). H&E stain. 40X.

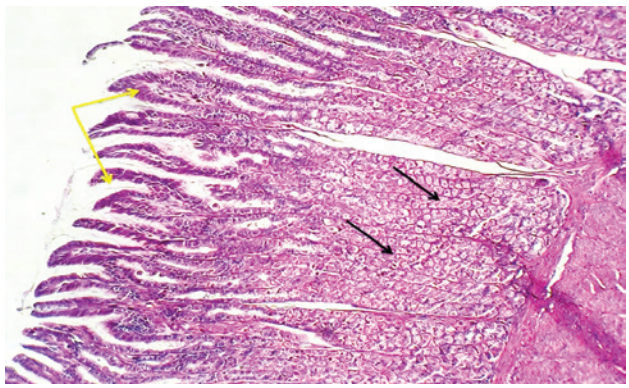

Figure: 6. Stomach of treatment group shows the parietal cells appeared light and purple cytoplasm (yellow arrows). H&E stain. 400X.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq

Conflict of Interest: Non

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